

LINKING THE TWO-WORLDS OF DRUG STATISTICS:
DIFFERENCES IN THE NON-CONTINUATION PATTERNS OF BLACK AND
WHITE DRUG USERS IN A GENERAL POPULATION

By

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Research regarding the use of drugs has consistently indicated that black youth are among the least likely drug users. Yet, black adults are disproportionately represented among those most affected by the problems associated with drug use. To better understand this incongruity, this research examines and extends a theory of the relationship between social roles, access and exposure to drugs, and maturing out of drug use; and hypothesizes that the differential assumption of adult roles across race groups may engender differential patterns of non-continuation that may ultimately be responsible for the relatively greater use of drugs among black adults.

Using data from the 1993 National Household Survey on Drug Abuse (NHSDA), the drug use of 4415 individuals who reported having ever used

marijuana, cocaine, or other illicit drugs is examined, and the impact of employment status, marital status, parenthood, and access and exposure to drugs on recent use is explored. Additionally, the interrelationships between these variables are analyzed to determine if adult role status is the primary determinant of the non-continuation of use.

The results suggest that, like adolescents, black adults in the general population are less likely drug users than are whites. However, further investigation determines that blacks who do use drugs are twice as likely as are whites to continue using drugs regularly as adults. Furthermore, though the continued drug use of whites is significantly influenced by the factors examined here, there is little evidence that the drug use of blacks is similarly influenced. Additionally, an analysis of the influence of these factors on one another indicates that adult roles are primarily important to the extent that they are effective in reducing both access and exposure to drugs and drug related activities.

Future research on the impact of familial responsibilities on adolescent drug use may prove fruitful in explaining race differences in this population. Further, policy makers should consider directing future resources toward a better understanding of the ways in which the non-continuation of drug use can be enhanced in order to reduce the negative health impact of continued drug use that is disproportionately experienced in minority populations.

CHAPTER 1

INTRODUCTION

The Problem

The misuse of alcohol and other drugs has been directly linked to a variety of significant social problems including, but not limited to, violent crime, HIV/AIDS, and poverty (Centers for Disease Control, 1990; Des Jarlais et al., 1991; Escobeda, Chorbá, and Waxweiler, 1995; Fullilove et al., 1990; Lowry et al., 1994). Drug use has for decades been viewed as a public health problem (American Medical Association, 1965,1966; State of Florida, 1969; Wolfman, 1969; Kirk, 1970; U. S. Department of Health, Education, and Welfare, 1971) as well as a particular focus of the law enforcement community and, despite the tremendous resources expended in the "War on Drugs," the magnitude of the drug problem appears to be increasing (Johnston, O'Malley and Bachman, 1996). Drug-related emergency room episodes increased by 65 percent from 1978 to 1995, while the overall volume of visits to emergency departments increased by only 24 percent during the same period (McCaig, 1996). According to the most recent statistics released by the Centers for Disease Control and Prevention (CDC) drug-related deaths claimed the lives of more than 11,000 individuals in 1995 alone (Rosenberg et al., 1996).

The link between substance misuse and many major preventable health and social problems in the U.S. is now well-established. Consequently increased efforts to curb such use have become a high priority for federal, state, and local policy-makers (U.S. Dept. of Health and Human Services, 1990). However, drug use is a complex problem, and thus, knowledge of the patterns of use and the associated consequences of use across various groups is essential if efforts to address these problems are to succeed.

While the problems associated with drug use touch all segments of society, its most serious consequences are not evenly distributed across the population. Differences in drug use and the suffering associated with drug misuse among groups defined by race or ethnicity are particularly salient, and until recently, relatively little research has attempted to explain these differences (Bachman et al., 1991; De La Rosa and Recio Arandos, 1993). This research attempts to increase our understanding by exploring the differential patterns of illicit drug use among black and white adults.

Race and Drug Use

Minority adults are more likely drug users than are whites the same age (Substance Abuse and Mental Health Services Administration, 1997), and perhaps because of this, minority communities suffer disproportionately from the most deleterious consequences of drug use. Mortality rates among young black and Latino men are inordinately high (Inciardi, 1986); drug use is a contributing

factor in many of these deaths. The age-adjusted death rates from chronic liver disease and cirrhosis are twice as high for African-Americans as for whites (approximately 30 per 100,000 population vs. 15 per 100,000, respectively), and three times higher among Native Americans. And for blacks and Latinos, a similar pattern appears in comparing lung cancer mortality rates with those of whites (Smith, 1993). Furthermore, the rate of increase in drug-related problems is higher for minority groups. From 1990-1994, the number of drug-related emergency room episodes increased by nearly 70 percent for blacks and Latinos while increasing by only 29 percent for whites (McCaig, 1996).

These differential statistics have been the impetus for policies and expenditures intended to prevent illicit drug use by minority populations before serious drug problems develop. While this focus on preventing initiation may benefit some minority groups, high rates of adolescent involvement in drugs are not the primary source of later-life drug problems for blacks.

Contrary to popular stereotypes, the proportion of black adolescents who use drugs is lower than the proportion of white adolescents who do the same. This finding has been replicated in household surveys, school-based surveys, and in surveys of institutionalized youth (see, for example, Allen and Page, 1994; Austin, 1988; Austin and Gilbert, 1989; Austin, Prendergast, and Lee, 1989; Byram and Fly, 1984; Harford, 1986; Kandel, Single, and Kessler, 1976; Mensch and Kandel, 1988; Welte and Barnes, 1987; Oetting and Beauvais, 1990; Prendergast, et al., 1989; National Institute on Drug Abuse, 1990).

Whenever racial/ethnic comparisons are included in the literature on adolescent drug use, the two ends of the usage continuum are consistently anchored by Native Americans on the high usage end and Asian Americans on the other. Native Americans tend to be followed by whites, with Latinos falling into a middle position, and blacks exhibiting patterns nearer the rates for Asian Americans (Wallace and Bachman, 1991, 1993). Thus, this examination of differential drug use patterns will focus on the paradoxical relationship between relatively lower rates of adolescent initiation and higher rates of drug-related problems in later-life among blacks.

Possible Explanations

In an attempt to explain this pattern of lower rates of adolescent drug use and more problematic use in later life, some have suggested that the findings of lower drug use among black adolescents may be inaccurate (Mensch and Kandel, 1988). While few would suggest that black youths are more likely to lie about their drug use than are white teens, some have suggested that methodological issues, such as sample selection in school-based surveys, bias the data. However, Wallace and Bachman (1993), by examining the consistency of racial differences across types of surveys and across time, and the correspondence of attitudes and use, conclude that the differences in black and white adolescent drug use are real and not mere artifacts of the data.

Another potential explanation for the unusual relationship between earlier use and later-life drug-related problems is race differences in age of initiation. If blacks begin using drugs at a later age than do whites, adolescent surveys may not capture the potential pool of those who may later develop a drug problem. While the literature on race differences in age at initiation is slim, there is evidence to suggest that this hypothesis, too, can not be supported. In a study of young black men and drug use, Brunswick, Merzel, and Messeri (1985) found that, on average, the initiation of drug use occurred prior to age 19. This finding is consistent with the data on the initiation of use in the general population (Kandel and Logan, 1984).

Given that we can reasonably assume that black adolescents are less likely users and that blacks as a group are also more prone to later-life use, one might logically suggest that black adolescents use different drugs or use them more extensively than do whites and thus are more susceptible to problem use. However, there is no evidence to substantiate this supposition. In fact, data from a national survey of adolescents suggests that no significant differences exist in the extent of use between black and white adolescent drug users, across all types of drugs including "hard"¹ drugs often associated with serious drug consequences (Amey, Albrecht, and Miller, 1996). Recently released data from the National Household Survey on Drug Abuse (NHSDA) support this finding.

¹ "Hard" drugs refer here to drugs commonly associated with problem use and include LSD, cocaine, barbiturates, tranquilizers, heroin, other narcotics, and inhalants.

According to the NHSDA preliminary report, in 1995 black adolescents were less likely to use alcohol, tobacco, marijuana, and cocaine than were their white counterparts (Substance Abuse and Mental Health Services Administration, 1997).

In addition to these possible explanations, current biological research is investigating the extent to which problem use is biologically predetermined (Smith, 1993). Given the higher incidence of alcohol within families, it has been suggested that genetics may play a role in proneness to addiction (Hartford and Samorajski, 1984). While genetics may influence an individual's susceptibility to developing drug problems, there is no evidence that such genetic markers are racially limited (Smith, 1993). And, given the wide intragroup variations in proneness to drug problems, it is not likely that biology can do an adequate job of explaining racial differences in drug addiction in general.

The Focus of this Research

Most examinations of drug use focus on either initiation into drug use or the consequences and characteristics of those who develop drug problems. And yet, developmental drug researchers have long recognized that while there are identifiable stages through which those who develop a drug problem are likely to progress, initiation into drug use does not necessitate that progression. In fact, most individuals who use drugs at some point in their life do not develop serious drug-related problems. While 56 percent of adults between the ages of 25-34

have used an illicit drug at some time in their lives, only 8 percent report having used any illicit drug in the past year (Substance Abuse and Mental Health Services Administration, 1997). This suggests that the vast majority of individuals who have tried and/or regularly used drugs simply stop using drugs before they reach middle age.

In a longitudinal study of drug use patterns from adolescence into young adulthood, Kandel and Logan (1984) found a consistent decline in the use of illicit drugs during the mid-twenties. These researchers conclude that non-continuation is a phase in the maturational process and suggest that it may be linked to the assumption of adult roles. Although Kandel and Logan (1984) do not examine racial differences in drug use, their conclusions are consistent with researchers who have. In an effort to account for their seemingly contradictory findings of lower adolescent drug use among blacks, Bachman et al. (1991) and Oetting and Beauvais (1990) suggest that the discrepancy in drug related mortality rates may be the result of more extensive and problematic use among some post-high school age minorities as a result of higher rates of unemployment and more limited education.

The policy emphasis on prevention of drug use encourages research to focus on initiation. Little research focuses on adult users who have not crossed the line into "problem user" and even less on the process by which former users become non-users. Furthermore, the mechanism by which lower using black adolescents become higher using adults is unknown. Following up on the

suggestion made by Kandel and Logan (1984), this research examines the effect of role acquisition on the differences in later-life use of illicit drugs between blacks and whites in the United States. To this end the following section will 1) provide an overview of the major theoretical frameworks that have been applied to drug use, 2) examine the importance of adult role status and the existing literature on roles and drug use, and 3) more fully discuss the differences in role acquisition between blacks and whites.

CHAPTER 2

LITERATURE AND THEORY

Introduction

Descriptions of the non-continuation phenomenon have been, for the most part, reported by individuals who deliver drug treatment. For example, in studies of alcoholism Hermos et al. (1988) and Tuchfield (1981) report abstinence rates of from 10 to 57% among former problem alcohol users who received no treatment. Murphy et al. (1989) observed a similar phenomenon in their studies of cocaine users.

Other researchers have focused on a more general population of users and include individuals who may have received drug intervention and those who have not. Continuing a longitudinal study that was initiated with a survey of high school students in New York State in 1971, Raveis and Kandel (1987) describe the changes in drug use behavior from adolescence to the late twenties. These researchers demonstrate that little initiation into drug use takes place after age 24-25 for all except prescribed drugs. Furthermore, most drug use ceases prior to that age among those who were not currently using drugs at ages 28-29. A later examination of this same population (Chen and Kandel, 1995) corroborates

these findings and further suggests that virtually no drug use was initiated between ages 28-29 and 34-35.

Despite the descriptive reports from which we can conclude that spontaneous non-continuation (non-continuation without intervention) of drug use is a common phenomenon, little attempt has been made to integrate non-continuation into a comprehensive theory of drug use. Attempts at explaining the use of illicit drugs fall into four major categories: 1) biological, focusing on both the pharmacological characteristics of the drugs themselves as well as the genetic makeup of the individual, 2) psychological, focusing on personality characteristics and mechanisms internal to the individual; 3) social psychological, also focusing primarily on personality characteristics but with added attention to the role of relationships with others in personality formation and motivation for behavior, and 4) sociological, with a focus beyond the individual to include the individual's relationship to society. The next section examines these four major categories of drug theory, highlighting some of the seminal works in each area, delineates the way in which the particular theory of drug use either explicitly or implicitly addresses non-continuation, and examines each set of theories as to its usefulness in explaining the pattern of race differences in both initiation and later-life problem use referred to above.

Theories of Drug Use

Physiological Explanations

Theory. A large number of researchers have sought an explanation for the use, and particularly the misuse, of illicit drugs within a biological framework.

This disease model of drug use can be broadly categorized as metabolic or genetic, though these two categories are not mutually exclusive (Stephens, 1991). Metabolic explanations focus on the pharmacological properties of the drug and the biochemical reaction that occurs upon the ingestion of the drug. These researchers suggest that the metabolism of individuals who develop a pattern of drug misuse is inherently different from that of those who do not. It is this metabolic difference that forms the basis for the physical need for continued drug use (Dole and Nyswander, 1980). Some physiological drug researchers have gone so far as to suggest that this metabolic imbalance may predispose individuals to the initiation of drug use (Stephens, 1991).

Other researchers have focused on genetic predisposition as the source of drug misuse, primarily in the area of alcohol use. Twin research, comparing the likelihood of alcohol addiction across pairs of both fraternal and identical twins, has suggested that more than environmental circumstances may be indicated in the development of later-life alcohol disorders (Heath, Jardine, and Martin, 1989). What appears as a genetic predisposition may be the result of an inherited metabolic deficiency as mentioned above or, as some have suggested, a genetically determined sensitivity to pain (Peele, 1985). There is no clear consensus on the mechanism by which genetics may act to influence biochemical differences, nor even on whether these differences are genetically based (Lettieri, Sayers, and Pearson, 1980).

Physiology and non-continuation. The biological perspective is possibly the least conducive to an explanation of the non-continuation of drug use. If, in fact, the mechanism by which individuals become misusers of drugs is also implicated in determining initiation, why then do the majority of those who initiate use fail to continue drug use into later life? Even if the metabolic mechanism acts after the drug is ingested to foster misuse (rather than initiation), how could recovery be explained within an addict population? The physiological literature has not focused on this end of the drug use continuum and thus these questions have not been answered.

Analysis. For the purposes of this research, a theory or set of theories is useful to the extent that it can explain group differences and specifically the seemingly paradoxical relationship between patterns of low rates of initiation and higher rates of later-life problem use among blacks. Though this category of drug use theories is among the weakest in regards to its usefulness for explaining non-continuation, it is not possible to totally discount its potential utility in explaining the greater prevalence of adult drug use among blacks relative to whites. If a case could be made for racial differences in physiological predisposition to drug misuse, it would be a logical fit with the empirical data. That is, though blacks initiate use at lower levels, they may be physiological predisposed to continue use into adulthood.

Though logically consistent, there are two problems with this suggestion. First, the theory is not complete. It affords us no explanation of the lower use among black adolescents. In fact, if it were suggested that physiological

predispositions influence both initiation and continuation, this theory would run counter to the data. Second, it has not been empirically demonstrated that drug misusers are indeed physiologically deficient in some way (Stephens, 1991). This would be a logical first step before suggesting that blacks are more likely to possess this deficiency.

Psychological Explanations

Theory. The individual is the focus of both the studies described above in which attempts have been made to identify physiological characteristics of those who both initiate and continue drug use and the theories that follow in which personality characteristics are viewed as the primary determinant of drug use.

The central theme of psychological theories of drug use is the deficient personality (explained primarily as the result of unsuccessful socialization) and the individual's perceptions of the extent to which drug use compensates for personality deficiencies such as low self-esteem, poor impulse control, inability to delay gratification, etc. The individual's experience of both the pleasurable and unpleasurable qualities of the drug play an important role in many psychological theories, while the influence of others is important to these theories only insofar as they 1) are responsible for the development of the deficient personality (i.e., defective or unsuccessful parenting skills), or 2) they provide an opportunity for the "deficient" individual to satisfy needs. Focus on the development of the deficient personality is most notable in the work of such

researchers as Ausubul (1952), Chein et al. (1964), Dai (1937), Krystal and Raskin (1970), Wurmser (1974), Khantzian (1978), Kohut (1971), Kernberg (1975), Fenichel (1945), and Wieder and Kaplan (1969).

Psychology and Non-continuation. Of the theorists described above, some contend that non-continuation is a difficult process that is rarely accomplished without intensive treatment (Gorsuch and Butler, 1976a, b; Greaves, 1974). However, others more readily recognize the occurrence of non-continuation outside of the treatment setting and suggest that such an occurrence may be facilitated by a number of different factors.

Gold and Coghlan (1976), for example, suggest maturity in itself may engender a sense of empowerment that reduces the need for drug use. No effort is made by these researchers to describe how this might occur or why it occurs for some individuals and not for others.

Fear is a powerful motivator according to both Goodwin (1979) and Milkman and Frosch (1973). These researchers suggest that fear of the consequences of drug use may precipitate non-continuation. Milkman and Frosch (1973) suggest that fear may generate a cognitive reorganization allowing individuals to find alternative models of gratification. According to Goodwin(1979), negative feelings, including fear, may reduce the likelihood of the individual's acting on drug using cues and ultimately, over time, extinguish the habit.

Crises are also noted as important events in the movement toward non-continuation. Greaves (1974) suggests that a realization of the destructive nature of use may motivate individuals to find emotional substitutions. Khantzian (1974), on the other hand, suggests that drug using individuals have always been ambivalent about their use and that crises may cause a final breakdown in the systems of denial. Lastly, Ausubul (1947, 1958) suggests that spontaneous non-continuation of drug use may be the result of delayed rather than arrested personality development.

Analysis. As mentioned above, the utility of any theory is based on its applicability to the across and within group differences in drug use that are the focus of this research. Due primarily to a focus on individual characteristics and a lack of attention to mechanisms outside of the individual by which these characteristics may be developed, it is difficult to extrapolate to the group level based on psychological theories.

To successfully explain differences across groups from a psychological perspective, one would have to move beyond the individual and assume that as a group blacks 1) differ in psychic characteristics primarily as a result of differing patterns of parental relationships and life satisfactions, 2) experience differential opportunity for drug use, or 3) experience drug use in a more positive way than do whites. However there are a number of problems with these assumptions. For example, family research indicates that blacks, on average, are more satisfied with both their parental relationship and with life in general than are

whites (Billingsley, 1992; Amey and Albrecht, Forthcoming). Furthermore, though blacks are more likely to be offered drugs (Amey, Albrecht and Miller, 1996), as mentioned above, they are less likely initiators.

Strong parental relationships and lower use even in the face of increased opportunity is, for black adolescents at least, consistent with the psychological theories of drug use described above. If, in fact, the drug using experience of black users was more positive than that of whites, we could suggest that though fewer blacks initiate use, because of the relatively positive nature of the experience, they are as a group less motivated to discontinue use. And thus, black adults would more likely be users. Little research exists on the subjective experience of drug use and a thorough search of the literature turned up no studies that compare drug-related experiences across racial groups. However, given that blacks suffer more from the negative effects of drug use than do whites, it seems unlikely that their experience with drugs is more positive. Furthermore, if drug use was a more positive experience for blacks it would logically follow that expectations of a positive experience should increase rates of initiation. This we know is not the case.

Social Psychological Theories

Theory. While psychological theories most often focus on objective deficiencies of individual personalities, social psychologists tend to focus on differences in both perceptions and more objective measures of the social

environment that may influence an individual's tendency to use drugs. Theorists of this perspective include Chein (1965, 1966), Hill (1962), Kaplan (1975a, b, c; 1976, 1977), Steffenhagen (1974), Huba, Wingard and Bentler (1979a, b), Jessor et al. (1968), Jessor and Jessor (1977), Kandel (1975, 1976), Burgess and Akers (1966),

Among the most prominent social psychological theory of drug use is social learning theory of Burgess and Akers (1966). These researchers have expanded the differential association theory of Sutherland (discussed in more detail in the following section) by including a modified version of traditional psychological theories of learning rooted in the behaviorism of B. F. Skinner. According to Sutherland (1939), learning takes place through our association with others and is most salient to the individual (and thus incorporated into personal behavior) to the extent that the association either occurs first or more frequently, lasts longer, or is of greater intensity. That which may be learned through these associations is not limited to the imitation of behavior but also includes the development of attitudes regarding desirable behavior in general.

Using Sutherland's concept of social interaction as the vehicle for teaching, Burgess and Akers (1966) expand his theory by incorporating the behaviorists' concepts of operant conditioning and reinforcement to explain the process by which individuals learn deviant behavior, including the use of drugs. According to these researchers, the likelihood of initiation is influenced by social interaction that provides the opportunity for learning both drug using behaviors

and attitudes towards drug use. While continued drug use is motivated by the social, psychological and physiological aspects of the drug using experience that either reward or punish the drug using behavior. Applied to opiate use (Akers, Burgess, and Johnson, 1968), the physiological effects of the drug interact with social influences so that individuals become drug users as a result of an interaction between prior attitudes toward drug use, the perceived positive reinforcement associated with the drug, and the social reinforcement of drug using peers. Physical dependence provides further reinforcement for the continuation of drug use and if, in the case of the addicted individual, treatment is successful a return to previous reinforcers in the social environment may trigger relapse.

Social psychology and non-continuation. Social psychological theories of drug use encompass many aspects of the individual's actual and perceived social environment that purely psychological theories fail to address. However, the applicability of the particular theory to non-continuation varies.

Chein (1965, 1966) suggests, as do many personality theorists, that while attempts at cessation are many, few individuals succeed without extensive support. According to Chein, this support must be directed toward helping the individual find alternative palliatives, separate from drug using peers, and seek treatment to overcome the consequences of the deprivation that, he suggests, drives drug use.

Huba, Wingard, and Bentler (1979a,b) suggest multiple reasons for the non-continuation of drug use. According to their theory, individuals may fail to continue drug use because of a lack of reinforcement from important individuals. Negative reinforcement such as an undesirable experience associated with drug use, whether social (e.g. arrest) or physical (e.g. health problems) may also influence non-continuation. Additionally, they suggest that a reduction in economic resources may limit drug involvement.

Kandel's contribution to drug use theory is the importance of stage in the determination of causal influences. According to Kandel et al. (1978), situational and social factors are more salient in early stages of drug use than in later stages when personality characteristics may contribute more to an explanation of both use and the non-continuation of use. We can thus conclude that changes in opportunities for use may influence those less committed to drug use while more involved users may require psychological intervention.

According to Kaplan's self-derogation theory (1977), individuals will fail to continue using drugs if the drug fails to provide the anticipated self-enhancing experience, provides unintended self-derogating consequences, or if opportunities for alternative responses that represent greater self-enhancing potential present themselves. Because the driving force behind the individual's drug use was the defiance of the normative patterns of the source of self-derogation, Kaplan posits that in most cases the drug use will be replaced with an alternative deviant behavior. He indicates that this search for the most

satisfying deviant behavior ends only when the individual develops self-enhancing relationships with normative others and/or develops coping mechanisms that allow the individual to deal with the negative interpersonal experiences in more productive ways. According to Kaplan, this transition is associated with individual maturation and correlated changes in the social environment.

Steffenhagen (1974) suggests that low self-esteem is related to both the initiation and continuation of drug use. Improvements in self-esteem will, according to Steffenhagen, eliminate the need for drug use as a coping mechanism. Steffenhagen further contends that although drug use may cease without improvements in self-esteem (e. g. as a the result of incarceration or forced treatment), these individuals are not cured but only rehabilitated and thus are prime candidates for relapse.

Social learning theory (Burgess and Akers, 1966) posits that all behavior, both deviant and normative, is learned. Consistent with that theory non-continuation of drug use must also be learned. Since drug use is learned through either primary, long lasting, frequent or intense associations with those who hold favorable (or at least neutral) attitudes towards drug use and both social and non-social reinforcements, changes in associations and in reinforcements are both necessary for the non-continuation of drug use to occur.

Analysis. As discussed above, the analysis of each group of theories is based on its ability to explain the group differences in drug use applicable to this research: that is, low use among blacks adolescents as compared to white

adolescents and higher adult use by blacks. While social psychological theories provide a better link between initiation and non-continuation, their utility in explaining group differences in general and this research focus specifically varies.

Chein's (1965, 1966) contention that both use and continued use are driven by psychic distress as a result of differential deprivation is compatible with the higher rate of drug use among black adults who are disproportionately disadvantaged as compared to white counterparts. However, it does not explain the lower rates of black adolescent use. In fact, it implies the opposite. If differential deprivation was the causal mechanism in drug use then black adolescents, given their increased likelihood of experiencing a life of poverty, should be more likely to use drugs, unless we can posit that black adolescents are better at coping with their negative social environment. If this were to be the case, we are still left asking why then do black adults not cope as well as black adolescents?

Huba, Wingard and Bentler (1979a, b) suggest that the intimate support system, perceptions of access, and personality characteristics are most important in explaining drug use among adolescents. However, they do not investigate to what extent blacks and whites are influenced similarly by the components of their model. This is not a problem unique to their theory but is particularly salient due to their focus on the structure of the intimate support system. A study by Amey and Albrecht (forthcoming) found that family structure differentially affects black and white adolescents (see also, Byram and Fly,

1984). Specifically, black adolescents from single-parent families are less likely to initiate drug use than are those in two-parent or step-parent homes, while whites similarly situated are, as would be suggested from the Huba, Wingard, and Bentler model, more likely drug users. Furthermore, access should favor black adolescents over whites as potential drug users (Amev and Albrecht, 1997). As for non-continuation, while it is unknown as to whether blacks receive more positive reinforcement from drug use, they are more likely to experience negative consequences (McCaig, 1996; Rosenberg et al., 1996), more likely to be arrested for drug offenses (Gibbs, 1988; Madhubuti, 1990), and as a group are less likely to have the financial wherewithal to purchase drugs. Thus, this theory would suggest that blacks are less likely to continue drug use than are their white counterparts.

Kandel and colleagues' (1978) suggestion that the differential influence of factors conducive to non-continuation is associated with the level of involvement in drug use may help to explain the differences in the correlates of drug use expressed in both theories and empirical studies. However, as an aid in explaining adolescent differences, it is less useful. Unless we suggest that the level of problem use differs across black and white adolescent drug users (and, as discussed previously, we cannot), it is not possible to apply her notion that different factors are more relevant at different levels of involvement to an explanation of race differences in drug use. As have other theories that focus on the role of opportunity in adolescent use, this theory leads us to suggest that black adolescents should be more likely to use drugs.

Kaplan (1977) and Steffenhagen (1974) focus on the development of self-esteem resulting from negative primary relationships and frustrated goal attainment, as the driving force behind initiation into drug use. Though consistent with studies that suggest that the self-esteem of black adolescents is at least as high, if not higher, than that of white adolescents (McClelland, 1990; Albrecht, Amey, and Miller, 1996), these researchers fail to explain the mechanism by which differences could develop between blacks and whites in the nature of the primary relationships. Furthermore, by suggesting that goal attainment is critical to drug initiation, they fail to recognize that drug use is initiated prior to the age at which most individuals would be engaged in activities related to goal attainment (Temple and LaDouceur, 1986; Raveis and Kandel, 1987; Chen and Kandel, 1995; Brunswick, Merzel, Messeri, 1985).

Social learning theory posits that individuals learn both the initiation and non-continuation of drugs through a process of association with others who provide both negative and positive reinforcements and models for both behavior and attitude in conjunction with the non-social reinforcement offered by the drug itself. To support the research problem using social learning theory would require that the most salient relationships in most black adolescents' experience would provide fewer models of drug use and provide more negative and fewer positive messages about drug use, than are provided by the primary relationships of white adolescents; or that the drugs themselves provide a less positive experience for blacks as compared to whites. However, if blacks are more likely than whites to continue drug use into adulthood, it would be unlikely

that negative drug effects would be motivating continued use. It is unknown to what extent black and white adolescents are differentially reinforced. However, given the disadvantaged physical and social location of blacks as a group, it would not be unreasonable to suggest that black adolescents may have a greater likelihood of positive reinforcement than their white counterparts.

Sociological Explanations

Theory. Sociological theories provide a focus beyond the individual and thus can lend insight to an explanation of behavioral differences across groups that purely individualistic theories, or even the social psychological theories, cannot. These theories are concerned with the role that the organization of society plays in influencing individual behavior. Because much of the focus of sociological drug research is on illegal drugs, many of the theories are similar to those of other kinds of crime and deviance. In fact, Gottfredson and Hirschi (1990) contend drug use is inherently analogous to crime in that it is simple to do, requires no special skill, brings short-term gain, and tends to be risky or thrilling. For this reason these researchers contend that no special theory of drug use is necessary. In what follows, I will highlight three of the major sociological theories of deviance particularly appropriate to the use of illicit drugs: differential organization theory (Sutherland, 1947), social control theory (Hirschi, 1969), role theory (Winick, 1974a; 1962).

As mentioned above, Sutherland's differential association theory (1947) posits that learning takes place through association with others. Thus, for

example, if a person spends a lot of time with or holds in high esteem, those individuals whose attitudes and behavior favor drug use, that person will be more likely to adopt similar attitudes and use drugs than the person whose primary associations are with those who do not favor the use of drugs.

Sutherland (1947) further explicates the way in which the social structure influences associations.

According to Sutherland's (1947) theory, deviance is rooted in normative conflict. He suggests that complex modern societies contain conflicting normative structures, patterns of behavior, and divergent definitions of deviant behavior. Variations in deviance rates emerge as a result of social conditions that influence the organization of families, neighborhoods, and peer relationships and thus, effect the differential probability of exposure to pro-deviance normative structures and deviant behavior patterns (Sutherland and Cressey, 1970). For example, this theory suggests that lack of employment opportunities in poverty stricken areas may limit adherence to generally accepted norms for adult role participation and, thus, provide an excess of opportunity for deviant associations. These conditions increase both the probability that individuals will participate in deviant acts (as defined by formal laws in general society) and, consequently, the rates of deviance in these areas.

In contrast, Hirschi's (1969) social control theory denies the existence of normative conflict and posits that there exists one normative behavior pattern or "moral order" rather than multiple competing definitions as described by

Sutherland (1947). Hirschi does not focus on an explanation for deviance but rather on an explanation for conformity. Attachment to, commitment to, involvement in, and belief in the moral order and its agents comprise the bonds that keep people in line. He suggests that the extent to which individuals are bonded to the conventional order of society dictates the degree to which they conform to the normative structure.

Hirschi's theory has been extended by Matsueda and Heimer (1987), Kornhauser, (1978) and Shaw and McKay (1969) to include the structural influences on societal bonds. These researchers conceptualize the structural counterpart of the individual level social control process as social organization--the strength of community institutions to control the behavior of its members. Weak social institutions impede the development of bonds critical to conformity and the variability across communities in the strength of social institutions is responsible for the divergence in rates of deviant behavior. This corresponds closely with Hirschi's (1969, 1983) findings that individuals from what he refers to as "broken" families are more likely to engage in deviant behavior than are those from intact families. An area with a high rate of single-parent families then should have a correspondingly high rate of deviant behavior. Consistent with the example above, fewer opportunities for employment as a result of weak or nonexistent economic institutions should result in higher rates of deviance, but for different reasons. While Sutherland (1947) contends social disorganization results in an excess of definitions favorable to deviance, Hirschi would contend

that it is a weakening of the social bond and an increase in opportunity for deviance by virtue of a lack of involvement in work activity, not differential definitions, that mediate the impact of employment opportunity on deviance.

Charles Winick (1974a; 1962a) developed a theory of drug use that integrates some of the aspects of both differential organization and social control theory into a role theory of drug use. Winick proposes that the incidence of drug use will be high for groups in which there is 1) access to drugs, 2) a disengagement from proscriptions against drug use, and 3) role strain or role deprivation. He defines a *role* as "a set of expectations and behaviors associated with a specific position in a social system," *role strain* as "difficulty in meeting the obligations of a role" and *role deprivation* as "the termination of a significant and cathected role relationship and the loss of the occasion for the behaviors associated with a role situation" (Winick, 1974a, p.4).

Although Winick (1974b) has developed a role inventory for adolescents, he gives little attention to developing definitions of the components of his proposal or the mechanisms by which these components may influence the drug use of one group over another. Instead he contends that, like Sutherland's (1956) differential association theory and Durkheim's (1954) investigation of suicide rates, his is a general approach; an approach that, according to Cressey (1994), focuses on accounting for, organizing logically, and integrating systematically, existing data. Therefore, he articulates the definition of each dimension of his proposal, indirectly through a meta-analysis of previous studies

of drug use, that include: (Winick, 1974a, 1973, 1964, 1962a, 1962b, 1961, 1960; Kielholz and Battegay, 1963; Siegrist, 1972; Goldberg, 1968; U.S. Department of Labor, 1966; Winick and Goldstein, 1965; Robins, 1973; Suchman, 1969; Groves, 1974; Marra et al., 1967; McKenzie, 1969; Sherlock, 1967; Spindler, 1952; Johnston, 1973).

In discussing issues of access, Winick (1974a) includes the importance of the proximity of the individual to the drug, as in the case of medical professionals (Sherlock, 1967), and also the cost of the drug and the limitations it puts on access, as in the case of the use of relatively expensive powdered cocaine by only the more affluent (Winick, 1974a). This can be likened to Hirschi's (1969) focus on opportunity for use. Further, he warns against taking a simplistic supply-and-demand view of access and suggests that a complex social process is involved in the variation of drug availability across time, place, and type of drug, though he does not delineate that process (Winick, 1974a).

In regard to the disengagement from proscriptions against the use of drugs, Winick is unclear. His language would suggest that he concurs with Hirschi (1969). Disengagement suggest that there exists something from which to separate, something to which the bonds have been loosened. Yet, in his examinations of previous studies of adolescents, musicians, physicians and others, he suggests that it is more likely for members of these groups to hold different attitudes towards drug use than the general population--a perspective closer to that of Sutherland (1947). Additionally, Winick seems to imply a

relationship between access to drugs and attitudes towards drugs that he never fully explicates.

It is clear from Winick's discussions of existing data (1974a) and the lack of attention he gives to defining issues of access and attitude, that he views these features of his proposal as necessary but not sufficient to induce drug use. For Winick, role is the crucial factor. He points to studies of drug use across different historical periods in Japan (Brill and Hirose, 1969), Sweden (Kielholz and Battegay, 1963; Siegrist, 1972), and Switzerland (Goldberg, 1968) in which both drug availability and attitudes toward use would favor high rates of drug use and suggests that while not everyone used drugs, groups in which drug use was prevalent were those that were most vulnerable to role strain or deprivation. He examines studies of drug use in Vietnam veterans (Robins, 1973) and suggests that while heroin was widely available and societal proscriptions against use were lessened in Vietnam, those who experienced the highest rates of drug problems were those for whom role strain was the greatest: the enlisted personnel. Winick demonstrates similar patterns in a variety of populations.

Further, Winick suggests that location in the social structure influences the vulnerability of some groups over others to increases in role strain and deprivation. Following through with the example of limited economic opportunity, it would be consistent with Winick's theory to suggest that areas of low economic opportunity may be areas of high adult drug use as a result of the absence of the

socially prescribed roles, especially if drugs are easily accessible and proscriptions against their use are not salient within the community.

Sociology and non-continuation. With the exception of Winick's (1974a; 1962a) role theory, the theories discussed above have little to say about the non-continuation of drug use. We can, however, extrapolate a potential process based on what they suggest about use in general.

Sutherland (1947) contends that deviance is learned through a process of differential association. Changes in the quantity, quality, or salience of an individual's associations opens the possibility for changes in attitudes towards and participation in deviant acts. On the individual level we could then conclude that those who are successful at forming new associations with individuals and groups for whom negative definitions of drug use exceed positive definitions would be less likely to continue drug use. To explain differences in non-continuation at the group level, it would be necessary that the opportunity for new associations be more available to one group than to another. According to Sutherland (1947), differences in opportunity for association would be a function of differential social organization.

Hirschi's (1969) theory of social control suggests a somewhat different mechanism of non-continuation. According to Hirschi, deviance is a function of attachment, commitment, involvement, and belief in conventional society. Based on this assumption, individuals who do not continue deviant behavior patterns change because of changes in the strength of these bonds. It would be difficult,

though not impossible, to suggest that changes in the strength of the bonds to the same individuals and institutions grow over time. It is possible that an individual's relationship with parents and significant others could improve, or a commitment to employment could develop that did not exist for schooling, and certainly opportunities for drug use may decline as an individual becomes engaged in more time consuming activities. It is also possible, and perhaps more likely, that changes in opportunities for the formation of these bonds develop over time.

Extending this to the group level and applying it to differences that exist across racial groups, it is difficult to explain how these groups would differ temporally in the degree to which they bond to society unless we suggest that some groups are more likely to bond to institutions and individuals salient in one phase of life while others are more drawn to relational experiences at another stage. It could also be suggested that temporal differences exist in the opportunity for the formation of bonds to the normative social structure. However, if this is the case, it is difficult to differentiate this theory from Sutherland's (1947) differential association theory, at least where group rates of non-continuation are concerned.

Winick (1974a; 1962a) posits a more fluid theory and thus one more conducive to non-continuation. Changes in roles and the consequent experience of role strain or role deprivation result in changes in patterns of drug use contingent upon access and proscriptions for and against the use of drugs.

It can thus be hypothesized that individuals will continue drug use if role strain or deprivation persists and access and attitudes remain unchanged. Further, it would be consistent to suggest that non-continuation will occur if role strain and deprivation are alleviated, even in the face of similar access and attitudes. At the group level Winick posits that high rates of drug use occur in populations with access to and positive attitudes towards drug use and where role strain and deprivation are prevalent. Differences in drug use rates across groups depends on differences in all three of these conditions, with the greatest emphasis on the influence of roles.

Analysis. Due to an emphasis beyond the individual, sociological theories of drug use are the most useful in explaining differences across groups. All of the theories discussed above suggest that groups more likely to be situated in highly disorganized areas characterized by high poverty, and non-normative family structure, irregular employment patterns, etc. are more likely to be characterized by high rates of drug use; that is, to the extent that societal disorganization influences the factors thought to be most critical in promoting deviant behavior. For Sutherland (1947), this critical factor was the opportunity for differential association that influenced the learning of both attitudes and behaviors conducive to drug use. For Hirschi (1969), it was the influence on the strength of bonds to conventional society. And for Winick (1974a; 1962a), the existence of role strain and deprivation was most critical. Using the example of occupational opportunity as a measure of social disorganization, all of these

theories would indicate that black adults should have higher rates of drug use than white adults, either as a result of either opportunities for association; attachment, commitment, and involvement in the social order; or, as a result of role deprivation. Though the explanations for this phenomenon vary, the hypotheses would be the same and thus, all three theories would fare well as basis for explaining the focus of this research.

Adolescent drug use, however, is another matter. Both the theories of differential association and social control would posit that black adolescents as well as adults should have higher rates of drug use. There is no reason to believe that black adults and black adolescents would differ on associations or social bonds any more than white adults and adolescents, and yet we know their patterns of drug use differ relative to whites. Winick's role theory (1962a; 1974a) on the other hand presents a possibility.

Winick explains the relationship between age and drug use by suggesting that adolescents in general are at higher risk for drug use because of the ambiguity of the status of adolescents in U.S. society. According to Winick (1974a), adolescents have lost their role as children but are not yet able to assume the role of adult. However, he does not examine the extent to which the validity of this statement may vary across groups.

There is reason to believe that while black adults are more likely to experience role deprivation relative to their white counterparts (Wilson, 1987; Wilson, Tienda and Wu, 1995; Bennett et al., 1989), black adolescents are less

likely than white adolescents to suffer the ambiguity of adolescence. Research on the black family suggests that the parents of black adolescents as compared to those of whites, are, on average, more likely to expect their children to mature earlier and to assume essential household responsibilities at a relatively young age (Bart and Levine, 1978). Additionally, black adolescents are thought to play a greater role in family decision making than their white counterparts (Weiss, 1979; Randolph, 1991). While some have suggested that this may be more the case for black females than for males (Rosser and Randolph, 1991), others contend that the black family is more equalitarian in the distribution of responsibilities (Billingsley, 1992; Willis and Greenblatt, 1978; Bart and Levine, 1978).

Research has demonstrated the existence of variability in role deprivation across the life span in the black population. The variability in roles patterns (in an opposite way) that of drug use by blacks; black adolescents have higher than average role responsibilities than their white counterparts and, as mentioned earlier, lower drug use, while black adults are less likely to participate in normative adult roles and have higher relative drug use. This pattern is consistent with Winick's contention that drug use in all populations is associated with role participation.

Summary

The theoretical literature described above was examined in order to demonstrate the lack of adequate explanation for the research problem at hand. With only one exception, the theories that have been most widely used are inconsistent with the empirical evidence found in the patterns of black drug use. Winick's role theory, while lacking in detail, is consistent with the differences in the drug using behavior of black and white adolescents and adults. In accord with Kandel's (1980) suggestion that the widespread non-continuation of drug use may be a result of the assumption of normative adult roles, Winick suggests that role deprivation may inhibit non-continuation. Thus, a role theory of drug use will form the basis for the further examination of differences in the use of illicit drugs by black and white adults. The following sections highlight the importance of adult role transitions, examine previous studies relevant to Winick's hypothesis, and present evidence suggesting a variation in the assumption of adult roles across race.

The Importance of Adult Roles

The importance Winick (1974a; 1962a) placed on the influence of adult roles is supported in the work of Marini (1984), Rossi (1968), Hogan(1981), Rosow (1985) and Elder (1978). According to these researchers, the major tasks marking the transition from adolescence to adulthood include the completion of schooling, entrance into the work force, and family formation (Marini, 1984). Hogan (1981) contends that these transitions are characterized

by a normative succession of social roles. While the transition experience varies to some degree both across time and along family characteristics (i.e., within and across cohorts), Hogan (1981) purports that it is not an unregulated process. Like Hogan, Elder (1978) finds that society imposes normative regulations regarding the appropriate timing and sequence of life events including school completion, the commencement of work activities, marriage, and parenting. Additionally, a study by Modell (1980) confirms the societal wide sense of a normative process. Using data from public opinion polls Modell found a prevalent attitude that economic self-sufficiency should precede marriage even among those for whom it did not.

Despite the fact that deviations from normative role participation have been found to have negative consequences for both the individual and for society (Elder, 1978; Hofferth and Moore, 1979; Hogan, 1981; Presser, 1974; Teachman, 1982) little attention has been given to the influence of role involvement on continued drug use. According to Kandel (1980), the consistent pattern and timing of non-continuation among former drug users may be the result of the assumption of adult roles. The following section examines the literature on non-continuation across a variety of populations and closes with a review of the limited studies that have examined the relationship between role occupancy and drug use.

Drug Addicts and Non-continuation

Charles Winick's hypothesis regarding the process of "maturing out" of drug use (referred to hereafter as the maturation hypothesis) has been tested in a number of settings. However, both Winick's work and that of other's who have endeavored to test this hypothesis have focused primarily on the maturation of drug "addicts"--individuals for whom the use of drugs is perpetuated by physical demands and for whom such use negatively effects daily living. However, the majority of drug users who "mature out" never experience addiction and have received little attention from the research community. This research seeks to understand the relationship between the components of Winick's theory and the general population of drug users. In what follows the work of those who have tested the maturation hypothesis will be reviewed and possibilities for its relevance to the general population will be suggested.

As discussed above, Winick (1974a;1962a) developed a maturation hypothesis that suggested the influence of three factors on the non-continuation of drug use: roles, access, and attitude. He tested his hypothesis based on the analysis of data collected by federal, state, and local law enforcement and health agencies and regularly reported to the Federal Bureau of Investigation. Winick discovered that two-thirds of all individuals who appeared on this list eventually fell off, usually after a period of about 10 years (Winick, 1974a; 1962a). Tests of Winick's hypothesis have proved equivocal and have focused primarily on treatment settings or on groups of addicts regardless of treatment status.

Follow-up studies attempting to replicate Winick's findings proved equivocal. O'Donnell (1969) suggested difficulties in replication may be the result of inaccuracies in the data as a result of poor reporting practices. He found that forced institutionalization (including imprisonment), not accounted for in the data, may have influenced Winick's results. However, Winick found consistent evidence for his hypothesis in both his work and that of other researchers across a variety of populations including jazz musicians (Winick, 1960; 1962b), adolescents (Winick and Goldstein, 1965; Winick, 1974b; Johnston, 1973; Abelson et al., 1973), physicians (Sherlock, 1967; Winick, 1961), and Vietnam veterans (Robins, 1973).

Other researchers have tested the maturation hypothesis in diverse populations. Ball and Snarr (1969) studied 242 opiate addicts in Puerto Rico 13 years after the onset of their drug use. These researchers found that of the 242 approximately 160 were either still using opiates or were institutionalized and about 1/3 were drug-free and leading crime-free lives. The authors conclude that:

Two major patterns exist with respect to the life course of opiate addiction in the United States. In one instance, the addict becomes increasingly enmeshed in a non-productive or criminal career as his dependence upon opiates progresses into adult years. In the second case, the addict terminates his drug-centered way of life and assumes, or re-establishes, a legitimate role in society. In this latter sense, it may be said that some one-third of opiate addicts mature out of their dependence upon drugs. (Ball and Snarr, 1969: 10)

Snow (1973) examined a sample of 3,321 narcotic addicts in the New York City area in her attempt to test the maturation hypothesis. The data were

obtained from the New York City Narcotics Register, a data set similar in nature to the one used by Winick. She found that approximately 25% of registered narcotics users eventually failed to reappear on the list over the four year period under study. Additionally, she determined that age was a significant factor in predicting reappearance. Of those who did not reappear, 74 percent were at least 28 years of age, as compared to only 65 percent of those whose use was re-reported.

As has been indicated in discussions of initiation, age is a significant correlate of drug use. Maddux and Desmond (1981) examined the patterns of use of 154 addicts over a period of two decades and found significant age effects. While they could not pinpoint a specific age at which the onset of non-continuation is likely to occur, these researchers did find evidence to suggest that increasing age heightens the probability of non-continuation.

Relatively recent research on the non-continuation of drug use among addicts includes an examination of the natural history of drug use in an incarcerated population (Walters, 1996). Walters' study examines the drug histories of 343 medium security federal inmates. He found that among those who conceded a history of drug use, 24.8% affirmed that they stopped using drugs without treatment prior to their arrest. Contrary to those who suggest that drug problems are the primary motivating force behind non-continuation, individuals who had ceased use on their own reported significantly fewer

problems related to drug use than did those for whom cessation was the result of incarceration.

A number of other researchers have examined post-treatment populations. Particularly notable are a group of California researchers who are working with a sample of individuals remanded to drug treatment in the early 60's. Brecht and Anglin (1990) examined the drug use patterns of this group over time conditioned on the receipt of supervision and treatment. These researchers found that taking on marital and family responsibilities as well as the sheer longevity of addiction were significant predictors of continued non-use. In other work with this sample, Anglin et al. (1986) found that the successful maintenance of a drug-free life was inhibited by involvements in drug dealing and other types of crime. Brecht et al. (1987) build on the research of their colleagues by examining the impact of personal resources and pre-addiction sociopathy on the maturation process of a subset (consisting of 36 percent white and 64 percent Latino males) of the same sample. They suggest that this process is little influenced by earlier involvement in anti-social behavior. However, high levels of personal resource, including level of education, intelligence, and parents' occupation, were significantly influential in the maturation process. Furthermore, controlling for these resources did not eliminate the Latino disadvantage in regards to non-continuation.

Also of interest is more recent work by members of the same research team. Bailey, Hser, Hsieh, and Anglin (1994) examined many of the individual-

level attributes theoretically associated with initiation and addiction to determine their influence on non-continuation. They divided the post-treatment sample into four categories: winners, striving addicts, enduring addicts, and incarcerated addicts and compared these groups in regards to familial experiences, continued involvement with drug using peers, self-motivation, and socio-legal influences. Contrary to that which psychological theoretical frameworks might suggest, winners were among the most likely to have difficult childhood experiences and were more likely to continue their involvement with drug using peers. More consistent with this perspective, they were also among those to be most confident about continued abstinence. However, the extent to which this confidence is the result of a history of abstinence is not addressed.

These reports are primarily focused on those drug users who have developed a drug problem and thus have caught the attention of researchers and treatment professionals. While drug misusers are an important part of the drug using population and must be included in the discussion of non-continuation, they are a relatively small proportion of those who have ever used illicit drugs. And while little is known about this population, even less is known about the majority of drug users who do not develop a drug problem and thus are less likely to garner the attention of the professional community.

Adult Drug Use and Roles

Continuation of drug use among non-addicts has received relatively little attention (Sussman et al., 1996). However, some recent investigations have begun to focus on this issue. Using longitudinal data, Newcomb and Bentler (1987) follow up on the suggestion made by Kandel (1980) that adult drug use may be related to role status by examining the impact of life pursuit and living arrangement on changes in drug use patterns in a young adult population. The sample for this investigation consisted of 479 of the 722 high school juniors and seniors who had participated four years earlier in a national study of adolescent development. These researchers found that changes in living arrangements and life pursuits did appear to influence continued drug use in this population. However, the most significant predictor of recent use was high school use (explaining 60% of the variation in current drug use), suggesting that while the impact of adult transitions was significant, it was also small. This may be the result of the relatively short time frame between first contact and follow-up. Only slightly more than 40 percent of the sample held a full-time job at the time of re-interview and 50 percent continued to reside in their parents' home. This indicates that the evaluation of adult influences on drug use should be examined somewhat further along in the life cycle.

Based on the longitudinal sample of former New York High School students described above, Kandel, Simcha-Fagan, and Davies (1986) examined the risk factors associated with delinquency and illicit drug use in a slightly older

sample. These researchers report that increased periods of unemployment and the lack of a marriage partner were significantly and positively related to drug use at age 24-25. They conclude that even more than early drug use, failure to enter the traditional roles of adulthood is an important predictor of drug use in young adulthood. Similar results are reported in Kandel and Raveis (1989).

In a related study of the National Longitudinal Survey over a period of three years, Miller-Tutzauer, Leonard, and Windle (1991) suggest a relationship between marital status and alcohol use. According to these researchers, reductions in alcohol use begin to appear one year prior to marriage and continue to decline up to the end of the first year of marriage, leveling off thereafter. Whether or not the early decline in drinking is attributable to the preliminary preparation for the marital relationship (courting, engagement, etc.), or vice versa, is not examined in this study.

Chilcoat and Breslau (1996) examine the relationship between roles and alcohol use, as well. Suggesting that the adult roles of marriage and parenthood may place demands incompatible with heavy use or limit exposure to social influences that enforce heavy use, they examine the impact of role transitions on alcohol disorders. The findings of this study reinforce those of Miller-Tutzauer, Leonard, and Windle (1991) and in fact take them one step further. Finding no differences in the likelihood of marriage across levels of alcohol related disorder at baseline, Chilcoat and Breslau (1996) determine that the direction of the effect under study is from adult roles to reduction in use and associated

problems, rather than the reverse. A number of other researchers have corroborated these findings (Wilsnack and Cheloha, 1987; Temple et al., 1991; Kandel and Raveis, 1989). Still others, however, suggest that the relationship may be multidirectional (see, for example, Yamaguchi and Kandel, 1987; Mullahy and Sindelar, 1991; and Kandel, Chen, and Gill, 1995).

The preceding discussion of both theory and empirical studies suggests that group differences in the propensity to continue drug use into later-life may be the result of differences in the likelihood of assuming adult roles. If race differences exist in adult role formation, then it is plausible to suggest that these differences may result in differential patterns of non-continuation that, in turn, could explain race differences in adult drug use. The following section addresses the existence of race differences in the assumption of adult roles.

Race Differences in Adult Role Participation

A succession of roles, primarily employment, marriage, and parenting, is considered part of a normative process by which individuals transition from adolescence to adulthood in American society (Hogan, 1981; Elder, 1978). Yet there exists variation in the extent to which diverse groups in our society conform to this normative pattern. For example, unemployment has long been a more severe problem for blacks than for whites, especially for black men.

In 1990 the unemployment rate for blacks was 10.5%, more than twice that for whites (U.S. Bureau of the Census, 1991). Several investigators have

documented a cyclical pattern of rising unemployment since the early 1970's, where Blacks have experienced particularly sharp increases in joblessness (Hirschman, 1988; Jaynes, 1990; Jaynes and Williams, 1989; Shulman, 1987, 1989; Welch 1990). Though older black and white men have similar employment patterns, younger black men and black men in the prime work years are significantly more likely than white men to be unemployed (Wilson, 1987).

The same is true for black women, though this has not always been the case. Black women have a history of higher participation in the paid labor force than their white counterparts (Tienda and Jensen, 1988). However, due to an increase in labor market participation among white women over the past thirty years, and a higher unemployment rate among black women with less than 4 years of college, a higher percentage of white women are in the labor force today (Wilson, Tienda, and Wu, 1995).

The family formation patterns of blacks and whites also vary significantly (Bennett, Bloom, and Craig, 1989; Chen and Morgan, 1991; Cherlin, 1992; St. John, 1982; Taylor, et al., 1990; Teachman, Polonko, and Leigh, 1987). Blacks marry at a later age than do whites (Heaton and Jacobson, 1994) and have an overall lower marriage rate (Bennett et al., 1989). According to Cherlin (1992), teen marriage has become increasingly uncommon among blacks; in 1989 only 4% of black women age 18-19 had ever married. Additionally, in 1996 nearly one-fifth of black women ages 40 to 44 had never been married, compared to about 8 percent of white women (Bianchi and Spain, 1996). The rate at which

remarriage follows a marital disruption is also lower for blacks. While 38 percent of white children remain in a single-parent household following the disruption of their parents' marriage, estimates by Bumpass (1984) indicate that 73 percent of black children continue to live in a single-parent household ten years later.

Race differences in the timing of the assumption of the parental role are also in evidence. Despite the relatively delayed marriage patterns of blacks, on average childbearing begins at an earlier age (Chen and Morgan, 1991; Hogan and Kitagawa, 1985; Maxwell and Mott, 1987; Moore and Stief, 1991; Rindfuss and St. John, 1983; St. John and Rowe, 1990).

Due in part to the fact that Black women are slower to marry and yet more likely to bear children, black women are also more likely to be single parents. More than forty-five percent of black households are headed by single-females, as opposed to slightly less than fifteen percent of white households (U. S. Bureau of the Census, 1991). If it is assumed that parents who reside in the home shoulder more of the parental burden (though according to Randolph (1995) there is reason to believe this varies across racial groups), then it would be logical to suggest that black fathers are less likely than white fathers to participate in the everyday responsibilities of the parental role.

Blacks have higher rates of unemployment, marry later and have lower rates of marriage, and have higher fertility rates and higher rates of extra-marital childbearing than do whites. Based on these disparities and the discussion of non-continuation above, it is logical to suggest that blacks will have lower rates

of non-continuation of drug use than whites. Furthermore, differential rates of non-continuation may explain the incongruous relationship between the low adolescent drug use and higher adult use of blacks relative to whites. These questions provide the focus of this research and will be examined analytically in the following chapters.

Conclusion

The preceding discussion presented descriptive reports of the phenomenon of non-continuation, identified a theory consistent with the empirical evidence on race differences in drug use, and explored the research relevant to that theory. The discussion presented above provides strong support for the hypothesis that racial differences in drug use may be the result of differential patterns of non-continuation. And further, that disparities in role assumption may be the mediating mechanism.

It has been suggested that deviation from a socially prescribed pattern of adult role formation may have deleterious results for both the individual and society (Elder, 1978; Hofferth and Moore, 1979; Hogan, 1981; Presser, 1974; Teachman, 1982). Race differences in role occupancy are well documented. Blacks and whites differ on both the sequencing, timing, and the rate of occurrence of most events considered to be normatively determined as key events in the transition to adulthood. Further, the drug research community has

long been aware of the differential impact drug use has on the black community. And yet, virtually no attention has been given the influence of non-continuation patterns on race differences in adult drug use.

This research is the first step in an attempt to explain the paradoxical pattern of black drug use. It proposes to answer three main questions: 1) Are blacks who do use drugs more likely to continue drug use into adulthood?; 2) Do any differences in non-continuation rates that may exist account for race differences in adult drug use; and, 3) To what extent are differential patterns of role occupancy associated with non-continuation for both blacks and whites? To this end, the following section outlines a model of drug use that incorporates the concepts relevant to Winick's maturation theory.

CHAPTER 3

MODEL AND HYPOTHESES

Until recently little attention has been given to race as other than a control factor in the drug literature and even less to explaining race differences in drug use. Furthermore, there is no evidence that any attempt has been made to reconcile the seemingly contradictory patterns of relatively low drug use in adolescence and higher adult drug use among blacks in the United States. Though "maturing out" of drug use is a well known phenomenon and directly relates to the transition from adolescent to adult user, little research has examined the factors related to non-use among former users in a general population. Furthermore, there has been no attempt to examine race differences in this regard. Kandel's (1980) suggestion that widespread non-continuation may be the result of the assumption of adult roles provides direction for an examination of race differences in non-continuation and, in conjunction with Winick's (1962; 1947) Role Theory of Drug Use, guides this research model.

Though roles are an integral component of Winick's theory, he also addresses the environmental influences that he suggests can either foster or hinder drug use, regardless of role status: access to drugs and the attitudes that support drug use. The model below expands upon Winick's theory by

addressing the interrelationships between the components of his theory and by the inclusion of both the socio-demographics of the individual as well as previous levels of individual involvement with drugs. Winick did not address

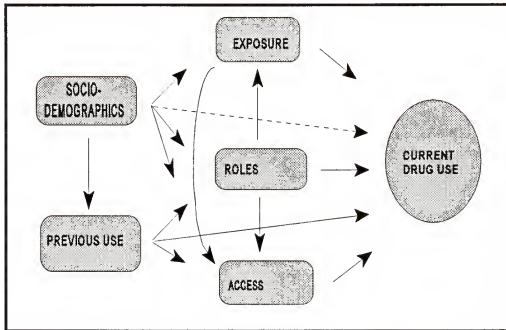


Figure 1. A Model of Drug Use

the mechanisms by which the components of his theory acted to influence drug use, but left that to future research (Winick, 1974). This study suggests that the mechanisms necessary to advance his theory may lie in multiple interrelationships between the components he outlines. The remainder of this section focuses on explicating these potential interrelationships, as illustrated in Figure 1.

The model (Figure 1) pictured above suggests that not only are access, roles, and exposure to non-proscriptive attitudes towards drug use individually

influential in continued use, they also influence one another. It is suggested here that the adoption of adult roles (employment, marriage, and parenting) may influence both exposure to non-proscriptive attitudes towards drug use and access to drugs themselves. By virtue of the time involved in carrying out the responsibilities associated with marriage, employment, and parenting one may have less opportunity to interact with individuals who hold attitudes favorable towards drug. Additionally, participation in these roles may increase contact with others who hold similar roles and whose time commitments likewise have forced them to interact less with those who are able to continue participating in drug related activities. This interaction with similarly situated individuals may further reinforce the movement away from a previous lifestyle and the adoption of attitudes more consistent with current responsibilities.

A reduction in involvement with continuing drug users may also directly limit access to the supply of drugs, if it is by virtue of these relationships that drugs were obtained. Roles (specifically employment and marriage) may also physically remove the individual from the environment in which drug use is promoted, thus reducing both exposure and access.

To the extent that drugs are more highly available in areas where proscriptions against drug use are less salient, exposure may also directly influence access, as pictured above. Thus, roles may not only directly influence drug access, but may influence it indirectly through the relationship with exposure.

The above discussion presents the rationale for the suggested relationships between the components of Winick's theory. In addition to these components, the research model incorporates both the socio-demographic characteristics of the individual and patterns of previous use that may influence continued involvement. It is suggested here that socio-demographic characteristics (including race, sex and socio-economic status) influence all of the components of the Winick model. Blacks are more likely to reside in areas where drug related activities are highly visible and thus it is likely that this group is differentially exposed to non-proscriptive attitudes towards use. Residential location is often the result of socio-economic disadvantages and though blacks are disproportionately disadvantaged, poor whites should suffer similarly from an increased exposure to favorable attitudes toward drug use. As a result of elevated levels of exposure, socio-economic status may also increase access to drugs. However, limited incomes may also prevent individuals highly exposed to drugs and drug use from gaining access to drugs. In this way, increases in socio-economic status may increase access while at the same time limiting exposure.

It is known that adult role status varies across the socio-demographic characteristics mentioned above. Blacks are more likely to be unemployed than whites and are less likely to marry. Men are more likely to be employed than are women and are less likely to be responsible for raising children. To the extent that particular roles influence drug use, these groups should have a lower

probability of non-continuation relative to their counterparts more likely engaged in role related activity. Lastly, socio-demographics are thought to influence previous use. From the adolescent literature it is known that whites are more likely users than are blacks, and that girls are less likely to use drugs than are boys. It is possible that levels of involvement in drug use may also vary across these groups. To the extent that high levels of involvement lower the probability of non-continuation, previous use patterns may have a direct influence on current drug use.

Previous use may also influence current use indirectly through a relationship with roles and access. It is suggested here that individuals who were more heavily involved in drug use in the past may be less likely to assume adult roles than those users who were less involved in drug use. Additionally, relationships formed as a result of more than occasional involvement in drug related activities may provide increased access to a supply of drugs and thus encourage continued use.

It should be noted that the above model poses no direct relationship between socio-demographic characteristics and continued use, and thus suggests that there is nothing inherent in these characteristics in and of themselves that should influence continued drug use. However, to the extent that this model omits important mediating factors that are related to the socio-demographic characteristics of the individual, these characteristics may be

significantly related to drug use. For this reason, this relationship is designated by a dotted line and will be examined in the analysis.

CHAPTER 4 DATA AND METHODS

Data

Data Set

The data for this research are taken from the 1993 National Household Survey of Drug Abuse (NHSDA). The NHSDA uses a stratified multistage area probability sample designed to make representative estimates of the prevalence and correlates of drug use for the civilian, noninstitutionalized United States population age 12 and older and reflects the responses of 26,489 individuals. To increase the reliability of estimates of drug use on groups of special interest, minorities and youth, aged 12-17, were over-sampled as were residents of six large metropolitan areas: Washington, D.C., New York, Miami, Denver, Los Angeles, and Chicago. This makes the NHSDA an appropriate tool for cross-race comparisons.

The NHSDA includes information on recent drug use, including intensity of use by specific type of drug, as well as retrospective data regarding life time use, types of drugs ever used, frequency of use and age at first use. The NHSDA also includes demographic data including race, sex, marital status, number of children and employment characteristics that allow for the

examination of the relationship between current role status and present drug use, and the impact of prior drug use on role status.

Interviews were held in person, though confidentiality was maintained by the use of semi-self-administered questionnaires. Trained interviewers read each question aloud to respondents who were asked to mark their response on the answer sheet. Interviewers did not see the completed answer sheet.

Although the NHSDA is among the best data sets for addressing the issues raised in this research, it is not without a number of limitations. As described above, the data are based on self-reports that are limited by both the respondents' willingness to answer honestly and their memory. Though similar research (Johnston and O'Malley, 1985; Johnston, et al., 1984; O'Malley et al., 1983; Malvin and Moskowitz, 1983; Smart and Jarvis, 1981) indicates that measures of self-reported drug use are, under these conditions, both reliable and valid, there are some who continue to question their findings (Fendrich and Vaughn, 1994). Additionally, this data excludes both individuals on active duty in the military and those residing in institutional settings (hospitals, group quarters, prisons, etc.). So, to the extent that drug use varies between these groups, estimates made from the NHSDA may vary from those of the U.S. population as a whole. Lastly, the data are cross-sectional not longitudinal, limiting the ability of this research to draw temporal inferences except in the instances where retrospective information is available.

Sample

Differences between blacks and whites in access and exposure to drugs, successful transitions into adult roles, as well as the characteristics of any previous drug use, including intensity of use and type of drug used, may all effect the non-continuation of drug use in adulthood. It is reasonable to assume that past drug use may influence factors associated with non-continuation. Therefore, in order to isolate the relationship between these factors and non-continuation (as opposed to non-use) it is necessary to include in our sample only those individuals who report ever having used the drugs under investigation in this research: marijuana, cocaine, and other illicit drugs limited here to other stimulants, hallucinogens, tranquilizers, sedatives, inhalants and analgesics. Furthermore, since initiation rarely occurs after age 22 and few individuals continue drug use past age 35 our sample contains only those individuals who report previous drug use and are between the ages of 24 and 35 (N=4415). Individuals were excluded from this sample if they had initiated drug use in the two years prior to the survey to avoid the confluence of factors associated with both non-continuation and initiation (n=34). Additionally, if multiple individuals in a single household reported past drug use and were in the age range of interest only one individual was selected (based on a random selection process) for inclusion in this sample, avoiding the possibility of interdependent responses (n=251). An examination of the characteristics of those excluded from this sample as compared to those who were included suggests that little difference

exists between the two groups with one important exception--blacks had a slightly higher representation in the excluded group than in the sample as a whole owing to attempts at over-sampling. The numbers were slight however and should not significantly affect the results of this research.

Variables

The dependent variable of interest is non-continuation, defined as no drug use within a set period of time prior to the interview. For analyses by drug type, a year is used as this demarcation point so as to insure a large enough sample of both users and non-users of cocaine and other drug users for tests of statistical significance. However, in multivariate analyses where drug use is the object of analysis regardless of drug type, non-continuation is defined as no use in the past month. The choice of a month rather than a year reduces the possibility that characteristics associated with current use (such as marriage or employment) changed during the year. However, it is necessary to recognize that included among individuals having no use in the past month are those who have stopped using drugs entirely as well as those for whom drug use is an occasional event.

Independent variables used in this analysis include measures of both individual and community risk characteristics associated with varying degrees of drug use. The risk factor of greatest interest to this analysis is race. Here it is included as a dichotomous variable, black or white, and is based on the

individual's self declaration. Other demographic characteristics of the individual included as control variables are 1) sex; 2) level of education, categorized in the bivariate analysis as: 8 or fewer years of schooling, less than 12 years but more than 8, a high school degree, some college, and at least a college degree (in the multivariate analysis education is a continuous variables); and 3) family income, in this data set measured as the sum of the incomes of everyone in the family from all sources except food stamps.

The second set of individual level variables measure the involvement in drug use: 1) the age at first use, 2) extent of use, measured as the number of times the particular drug was used in the individual's life, and 3) degree of drug involvement, indicated by an affirmative response to the question of whether the particular drug was used daily for a period of two or more weeks or, for other drug use as whether the individual ever used more than one of the six types of other drugs included in this analysis. Also included is a measure of drug availability, the individual's assessment of how easy it is to acquire drugs, ranked from 1 (impossible) to 5 (very easy). Lastly, exposure to drug use and sales is measured by the responses to two variables: How often do you see people under the influence of drugs in your neighborhood? and, How often do you see people selling drugs in your neighborhood? Both of these ordinal variables range from 1-5 such that 1 is associated with most frequent contact.

The third set of variables is used to determine the extent of participation in "adult" roles, marriage, child rearing, and employment. Because it is the

participation in any role at the present time that is of interest the role variables are all dichotomized to indicate current participation, or lack thereof, in the particular role. A positive indicator on child rearing denotes the presence of child(ren) in the home, either the respondents' own child(ren) or their step-child(ren).

Methods

A number of analytical strategies are employed to answer the questions posed above. First, bivariate analysis and the chi square and t statistics are used to determine the significance of race differences in the propensity to ever use, the extent of use, and the recency of use of the three types of drugs examined here, in the general population of individuals ages 25-34. Second, also at the bivariate level, the characteristics of drug use among those who report ever having used any of these drugs is examined across race to determine if the characteristics of use may be a factor in any differences in non-continuation that may exist. Third, the distribution of the individual characteristics of past year users are examined to identify factors other than past drug use that may influence the continued use of drugs. The last bivariate analysis examines the extent to which blacks differ from whites in regards to the characteristics found to be significantly related to drug use in the previous analysis.

The multivariate analysis begins with the use of logistic regression to identify the extent to which characteristics previously found to be associated with drug use, including race, influence continuation while controlling for all other variables. Further, the degree to which these variables influence the drug use of blacks and whites similarly is examined in this context.

These analyses will identify the extent to which patterns of use differ across race groups, the impact of non-continuation on any race differences that may exist in adult drug use, and the direct effect of selected characteristics and patterns of previous use on non-continuation. A final analysis, using a LISREL structural equation model, will examine the mutual impact of these factors on one another and will allow for the identification of both direct and indirect effects on current drug use of any kind.

All analyses are based on weighted data using weights provided in the NHSDA data set. The weights reflect adjustments for non-response, as well as for over-sampling and are post-stratified so that the characteristics of the sample more closely reflect those of the U. S. population as reported in the 1990 Census. These weights were further adjusted in this analysis in order to scale the population by a factor equivalent to that which it represents in the analytic sample¹.

¹ Tests of significance used here assume simple random sampling and, thus, it is recognized that because variances may be underestimated (although only slightly in a sample of this size), statistical significance at the .05 level should be interpreted cautiously.

CHAPTER 5

RESULTS

The first goal of this analysis was to examine the general patterns of drug use in the adult population across racial groups--Does the drug use of black and



Figure 2. Percent Reporting Ever Use of Any Drug by Race and Age.

white adults reflect that found in the adolescent literature? As can be seen in Figure 2, this does indeed appear to be the case. Consistent with the results of adolescent drug research, black adults are less likely to have ever used drugs than are their white counterparts. In fact, the distribution of previous drug use for blacks is nearly parallel that of whites--the proportion of the population

reporting past drug use increases until the early to mid-twenties at which time it levels off. Although these data reflect a cross-sectional rather than a longitudinal sample, these findings are consistent with prior drug research that suggests that the majority of initiation into drug use occurs prior to the early twenties.

Table 1 presents the bivariate relationships between race and drug use for all individuals ages 24-35 regardless of previous use. As this table indicates, 65.4 percent of whites report having ever used marijuana, while only 49.9 percent of blacks report such use. A similarly significant relationship holds for both the use of cocaine and the use of other drugs. Less than 16 percent of blacks and more than 27 percent of whites admit to having ever used cocaine in any form. The differential between blacks and whites was even greater for the use of other drugs, here defined as the non-medical use of other hallucinogens, inhalants, stimulants, sedatives, analgesics, or tranquilizers. Blacks were only slightly more than 1/3 as likely to have ever used these drugs, suggesting that the use of drugs other than cocaine and marijuana is particularly concentrated in the white population. A pattern comparable to this is reported for measures of extent of involvement in drug use: total lifetime use and daily use for at least two weeks.

Not only are blacks less likely to have ever used the drugs examined here, they are also less likely to be represented among the heaviest users of

Table 1. Use of Marijuana, Cocaine, and Other Drugs (in percents) by Race (Black N=982, White N=6090, NHSDA, 1993).

	Marijuana			Cocaine ^a			Other Drugs ^b		
	Black	White	Chi square/t	Black	White	Chi square/t	Black	White	Chi square/t
Percent ever used ^c	49.9	65.4	85.48**	15.8	27.4	58.68**	11.6	30.9	159.48**
Percent used past year	16.3	16.3	0.00	5.2	4.4	1.00	3.9	7.9	19.94**
Ever used daily for at least 2 weeks/multi-drug use ^d	12.7	18.6	19.53**	3.7	5.4	6.89**	4.3	17.0	108.78**
Total life time use									
• Never	50.2	34.7	89.62**	84.7	72.6	68.09**	89.2	69.8	165.58**
• 1-10 times	26.3	33.1		18.3	15.2		6.7	15.9	
• 11-49 times	7.2	8.5		2.0	5.4		2.0	5.8	
• 50-100 times	5.2	6.9		2.0	2.7		1.0	2.7	
• More than 100 times	11.1	16.8		3.0	4.1		1.1	5.8	

^a In all forms

^b Other drugs=the non-medical use of other hallucinogens, inhalants, stimulants, sedatives, analgesics or tranquilizers

^c N's are weighted

^d Daily use for at least 2 weeks corresponds to marijuana/cocaine, multi-drug use to the use of other drugs

* p > 0.05

** p > 0.01

these drugs. Only 16.3 percent of blacks report using marijuana more than 50 times in their life compared to 23.7 percent of whites. This pattern holds for both cocaine and other drugs, though the race differential is smaller for cocaine. Five percent of blacks as compared to 6.8 percent of whites, and 2.1 percent of blacks versus 8.5 percent of whites can be counted among the heaviest users of cocaine and other drugs, respectively.

Blacks are also significantly less likely to demonstrate the level of involvement in drugs that manifests itself as daily use for an extended period of time, here measured as 2 weeks. Though 16.8 percent of whites report daily use of marijuana for a period of at least 2 weeks, only 11.1 percent of blacks report such consistent involvement. This is the case for cocaine use as well—3.7 percent of blacks have used cocaine daily for two weeks or more, compared to 5.4 percent of whites. Level of involvement in other drugs was measured as multiple drug use—having used drugs in more than one of the six broad drug categories. Here too, blacks indicate a lower level of involvement than do whites. Of those reporting any past drug use, only 4.3 percent of blacks have used drugs in 2 or more these categories compared to 17 percent of whites.

The only non-significant relationships presented in Table 1 appear for past year use. No race differences in the use of marijuana in the past year are evident in this sample. Slightly more than 16 percent of both blacks and whites report past year use of this drug. Blacks are somewhat more likely to have used

cocaine in the past year than are whites (5.2 versus 4.4 percent for blacks and whites, respectively), though this relationship, too, is non-significant. However, consistent with the pattern of other drug use across racial groups, whites are significantly more likely to have used other drugs in the past year (7.9 percent of whites versus 3.9 percent of blacks).

The lack of significant difference in past year use belies the difference in rates of non-continuation between blacks and whites. Despite the fact that blacks are less likely to have ever used drugs, there exists no race differences in the proportion of individuals reporting recent use. However, among those who have ever used marijuana, cocaine, or other drugs, approximately 33 percent of blacks compared to between 16 and 25 percent of whites, depending on the type of drug, have continued drug use into adulthood. These results confirm the hypothesis that despite lower rates of use in the general population, blacks who do use drugs of any sort are more likely than their white counterparts to continue drug use into adulthood.

The relationship between race and recent use of drugs of any kind is pictured in Figure 3. This figure illustrates a disparate pattern of recent use with increasing age in a cross-sectional sample of blacks and whites ages 18-35. While whites in this sample are less likely to report recent use with increasing age, self-reported recent use by blacks increases into the mid-twenties and thereafter declines. Additionally, this decline is somewhat shallower than that of whites, leaving blacks at age 35 with slightly higher rates

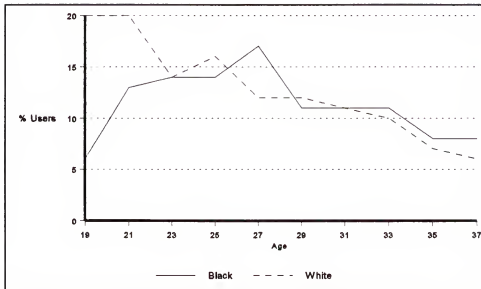


Figure 3. Past Month Use of Any Drug by Race and Age.

of recent use and, as a comparison of Figures 2 and 3 illustrates, a much smaller gap between the proportion of those who have ever used and those who are current users, than exists for whites.

This is corroborated in the analysis of the use characteristics of "ever-users" presented in Table 2. Significant race differences are evident among this population in recency of use for both marijuana and cocaine. Of those who reported ever having used either marijuana or cocaine, blacks are more likely to report past year use in each category. Defining non-continuation as the absence of use in the past year, the rate of non-continuation for former marijuana users is 0.67 for blacks and 0.75 for whites. Comparable rates for cocaine are 0.67 and 0.84 for blacks and whites, respectively. Blacks are also more likely to have used either cocaine or marijuana in the past month. Nearly

Table 2. Use Characteristics of Individuals Who Ever Used Marijuana, Cocaine, or Other Drugs (in percents) by Race (NHSDA, 1993).

	Marijuana			Cocaine ^a			Other Drugs ^b		
	Black (452) ^c	White (3774)	Chi square/t	Black (163)	White (1780)	Chi square/t	Black (106)	White (1762)	Chi square/t
Recency of Use									
• Use in past month	18.7	11.0	23.67**	10.6	3.3	34.07**	10.0	8.1	0.50
• Use in past year	13.9	13.9		22.0	12.8		15.0	16.5	
• No use in past year	67.4	75.1		67.4	83.9		75.0	75.4	
Total life time use									
• 1-10 times	52.9	50.7	2.93	54.7	55.5	7.06	57.6	49.8	5.10
• 11-49 times	14.5	13.1		12.9	19.9		21.0	20.4	
• 50-100 times	10.4	10.5		13.0	9.7		10.3	9.2	
• More than 100 times	22.2	25.7		19.4	14.9		11.1	20.6	
Ever used daily for at least 2 weeks/multi-drug use ^d	25.6	28.5	1.70	23.2	20.9	0.48	42.0	58.6	9.79**
Age at first opportunity for use	16.1	15.1	7.93**	21.0	18.8	8.08**	--	--	--
Age at first use	16.9	16.1	6.23**	21.3	19.7	6.32**	17.2	17.0	0.05

^a In all forms

^b Other drugs=the non-medical use of any other hallucinogens, inhalants, stimulants, sedatives, analgesics or tranquilizers

^c N's (in parentheses) are weighted

^d Daily use for at least 2 weeks corresponds to marijuana/cocaine, multi-drug use to the use of other drugs

* p > 0.05

** p > 0.01

19 percent of blacks compared to only 11 percent of white ever-users report past month use of marijuana. For cocaine the difference is even more significant. While only 3.3 percent of whites indicate the use of cocaine in the past month, more than 10 percent of blacks report such recent use. No statistically significant differences were evident for the recency of the use of other drugs.

Given the possibility that differences in non-continuation may be the result of differential use patterns, Table 2 also presents a comparison of other use characteristics across race. No significant differences in the lifetime use of either marijuana, cocaine, or the use of other drugs exist between blacks and whites in this sample of "ever-users." Though whites are more likely to be found among heavy (use greater than 50 times in life) marijuana users--36.2 percent of whites versus 32.6 percent of blacks--and blacks are more likely to report heavy cocaine use--32.4 percent as compared to 24.6 percent of whites, the differences are non-significant. Lifetime patterns of the use of other drugs are consistent with the findings above. That is, whites are slightly over represented among the heaviest users in this category as well, though again the difference is non-significant.

Additionally, Table 2 depicts no significant relationship between consistency of involvement--daily use for a period of at least two weeks, and race in the use of either marijuana or cocaine. Involvement in the use of other drugs however, significantly favors whites. More than 58 percent of whites in

this sample of "ever-users" report multiple use of other drugs, as compared to only 42 percent of their black counterparts.

Though the findings presented above suggest that differences in non-continuation are not likely to be the result of more intensive use, some differences in the characteristics of use do appear significant. Blacks, on average, are slightly but significantly older than whites at first opportunity for the use of both marijuana (16.1 versus 15.1, for blacks and whites respectively) and cocaine (21 for blacks compared to 18.8 for whites). It is interesting to note that the time between opportunity and use is shorter for blacks than for whites, such that on average whites report close to a year elapsing between first opportunity and first use, while for blacks this difference is 9.6 months for marijuana and 3.6 months for cocaine. This differential lag creates a smaller but still significant difference in age at first use. Information on the age at first opportunity for use was not available for other drugs, however, no significant difference exists between blacks and whites in age at first use of these drugs.

Though not tested for statistical significance here, it is also interesting to note the within race differences across type of drug. While both blacks and whites are less likely to have used cocaine than marijuana, there appears to be a greater cross-drug variation in the characteristics of use for whites than for blacks. For example, while 32.4 percent of whites may be considered heavy marijuana users, only 24.6 would be classified similarly for cocaine use. Yet, for blacks the proportions of heavy users are nearly identical (32.6 versus 32.4

percent for marijuana and cocaine, respectively). The differences in rates of non-continuation of these drugs also vary across race. Among whites, non-continuation is more likely for cocaine than for marijuana (0.84 versus 0.75), but for blacks the rates of non-continuation are identical across the two drugs. Though the contrast is not as great, a similar pattern holds for daily use of these drugs for greater than two weeks. While both whites and blacks are more likely to have ever consistently used marijuana than cocaine, the difference in use patterns between the two drugs is smaller for blacks than for whites. A similar comparison can be made between marijuana and the use of other drugs. However, here it is white other drug users, not black, that exhibit patterns of use more similar to those of marijuana.

Up to this point, the possibility of different initiation patterns, and the potential for differences in characteristics of use by blacks and whites have been examined in an effort to explain differential drug patterns between these groups. Another possible explanation for these disparate patterns may be found in the socio-demographic characteristics of continued users. Tables 3 and 4 examine first, the characteristics more likely associated with continued use, and second, differences in these characteristics across racial groups.

Specifically, Table 3 presents the proportion of individuals who reported past year use among those who admit to ever having used marijuana, cocaine, or other drugs across selected characteristics. Among ever-users, marijuana users were more likely to have continued their drug use into the past year than

Table 3. Percent of Individuals Reporting Past Year Use of Marijuana, Cocaine, or Other Drugs by Selected Characteristics (NHSDA, 1993).

	Marijuana			Cocaine ^a			Other Drugs ^b		
	Ever Use (4226 ^c)	Use in Past Year (1076)	Chi square/t	Ever Use (1943 ^c)	Use in Past Year (338)	Chi square/t	Ever Use (1868 ^c)	Use in Past Year (474)	Chi square/t
Race									
• Black	452	32.5	12.52**	163	32.6	27.85**	106	25.0	0.01
• White	3774	24.9		1780	16.1		1762	24.6	
Sex									
• Female	2001	20.2	62.69**	821	13.4	17.36**	766	20.3	12.29**
• Male	2225	30.8		1122	20.7		1102	27.6	
Age (mean)									
• Past year use	1076	29.2	7.73**	338	29.7	3.06**	474	29.5	3.16**
• No past year use	3150	30.2		1605	30.3		1394	30.1	
Income (mean)									
• Past year use	1076	30,150	9.67**	338	34,751	2.09*	474	34,867	1.40
• No past year use	3150	38,444		1605	37,821		1394	36,800	
Education									
• 8 th grade or less	46	31.0	95.19**	20	15.8	18.96**	23	43.5	47.38**
• Some high school	458	40.9		233	23.3		216	32.5	
• High school	1445	28.6		663	20.7		614	28.4	
• Some college	1148	22.2		547	15.5		506	25.1	
• College or greater	1107	19.2		466	12.7		492	13.9	
Employment Status									
• Employed	3342	24.3	50.45**	1536	17.0	27.01**	1493	23.9	29.42**
• Unemployed	276	43.4		148	32.1		130	43.4	
• Not in labor force	598	26.0		258	12.2		240	17.6	

Table 3--Continued.

	Marijuana			Cocaine ^a			Other Drugs ^b		
	Ever Use (4226 ^c)	Use in Past Year (1076)	Chi square/t	Ever Use (1943 ^c)	Use in Past Year (338)	Chi square/t	Ever Use (1868 ^c)	Use in Past Year (474)	Chi square/t
Marital Status									
• Married	2414	18.8	179.91**	1099	9.5	109.26**	988	20.1	21.73**
• Unmarried	1783	35.0		833	27.8		865	29.6	
Presence of Children									
• Child in home	2324	19.1	120.41**	1012	12.5	36.98**	952	24.4	0.03
• No children in home	1902	33.8		931	23.0		915	24.8	
Ease of obtaining drug	169	9.2	79.24**	162	7.8	26.52**	318	17.8	9.94**
• Impossible									
• Difficult, but not impossible	684	15.5		536	13.2		987	27.0	
• Fairly or very easy	3352	28.8		1221	20.9		561	24.4	
How often see people under the influence of drugs in neighborhood?									
• Often	598	41.8	151.23**	322	32.8	78.02**	310	36.2	59.89**
• Occasionally	1137	29.9		570	18.0		557	30.6	
• Rarely	1245	23.4		540	15.4		514	20.8	
• Never	1235	16.5		506	9.2		484	14.8	
How often see people selling drugs in neighborhood									
• Often	265	41.8	121.97**	124	41.5	88.28**	115	37.2	66.30**
• Occasionally	346	41.5		224	21.6		189	39.3	
• Rarely	517	31.9		259	26.5		242	36.2	
• Never	3084	21.5		1331	12.7		1318	19.3	

Table 3--Continued.

	Marijuana			Cocaine ^a			Other Drugs ^b		
	Ever Use (4226 ^c)	Use in Past Year (1076)	Chi square/t	Ever Use (1943 ^c)	Use in Past Year (338)	Chi square/t	Ever Use (1868 ^c)	Use in Past Year (474)	Chi square/t
Used daily for at least 2 weeks/multi-drug use ^d									
• Yes	1199	46.9	385.92**	404	21.9	6.73**	1019	36.3	179.08**
• No	3005	17.6		1532	16.4		849	8.6	
Age at 1 st use									
• Past year users	1076	15.4	9.50**	338	19.7	0.51	474	16.5	3.62**
• No past year use	3150	16.3		1605	19.6		1394	17.2	

^a In all forms^b Other drugs=the non-medical use of other hallucinogens, inhalants, stimulants, sedatives, analgesics or tranquilizers.^c N's (in parentheses) are weighted^d Daily use for at least 2 weeks corresponds to marijuana/cocaine, multi-drug use to the use of other drugs

• p > 0.05

** p > 0.01

were users of any other drug. Slightly more than 25 percent of marijuana users had used marijuana in the past year compared to 17 percent of cocaine users and 24 percent of users of other illicit drugs. The pattern of relationships between past year use and individual characteristics was similar across drug categories, with only a few exceptions for the use of other drugs. Past year users of both marijuana and cocaine were more likely to be black than white, male than female, younger, have less income, have more than an eighth grade education but less than a high school degree, be unemployed, unmarried, not living with any children, have relatively easy access to drugs, live in neighborhoods where drug sales and use were visible, and have demonstrated a consistent pattern of daily past drug use.

A similar pattern holds for the use of other drugs, with only a few exceptions. Neither race nor income was significantly influential in the past year use of other drugs among individuals who have ever used any of these drugs. Additionally, the presence of children in the home was not significantly related to past year use. Differences also exist in the relationship between access and the use of other drugs. Past year users of other drugs are most likely to be found among those who report some difficulty in obtaining drugs. Keeping in mind that whites are more likely users of other drugs, this finding may reflect a discrepancy in access across racial groups. This issue will be investigated further below.

In summary, Table 3 indicates that individuals who continue drug use into adulthood are, in general, those individuals with the greatest access and exposure to drugs and the drug use of others, and who have the fewest resources and role responsibilities. Both blacks and males are the most likely to continue drug use. The extent to which blacks and males are more likely to have both greater access and fewer resources and responsibilities may explain their disproportionate representation among continuing drug users.

Table 4 depicts the relationship between the focus of this research, race, and the characteristics that enhance the possibility for continued drug use. Among the users of marijuana, cocaine, and other drugs, blacks are significantly more likely to possess the socio-demographic characteristics of current users than are whites, with only a few exceptions. The sex distribution of those who have ever tried marijuana is similar across race categories, for both blacks and whites males are more likely to have ever used marijuana than are females. This also holds for the use of other drugs, however black cocaine users are significantly more likely to be male than are whites. More than 66 percent of blacks who ever used cocaine are male, yet only 57.4 percent of the white group are likewise.

Contrary to what might be expected, given that continued drug use is associated with a younger population, blacks in this sample of "ever users" are older than their white counterparts. Significant though slight, the age

Table 4. Selected Characteristics among Individuals (in percents) Having Ever Used Marijuana, Cocaine or Other Drugs by Race (NHSDA, 1993).

	Marijuana			Cocaine*			Other Drugs ^b		
	Black (452) ^c	White (3774)	Chi square/t	Black (163)	White (1780)	Chi square/t	Black (106)	White (1762)	Chi square/t
Sex									
• Female	47.0	47.5	0.03	33.8	42.6	4.37*	32.3	41.5	3.03
• Male	53.0	52.5		66.2	57.4		67.7	58.5	
Age (mean)	30.0	29.9	0.38	30.9	30.4	2.09*	30.8	29.9	2.36**
Income (mean)	27,024	37,590	8.81**	26,734	38,834	5.78**	27,593	36,800	3.43**
Education									
• 8 th grade or less	1.4	1.7	67.66**	2.9	1.6	38.54**	3.0	2.3	8.12
• Some high school	18.9	9.8		23.1	10.4		12.2	11.6	
• High school	39.1	33.9		37.6	33.8		44.5	31.7	
• Some college	27.1	27.1		27.6	28.3		22.5	28.2	
• College or greater	13.5	27.5		8.8	25.9		17.8	26.2	
Employment Status									
• Employed	69.3	80.5	78.25**	64.3	80.5	39.38**	67.3	81.2	20.33**
• Unemployed	16.1	5.5		19.9	6.4		18.1	6.2	
• Not in labor force	14.6	14.1		15.8	13.1		14.6	12.6	
Marital Status									
• Married	36.0	60.3	99.79**	34.3	59.8	36.87**	36.0	55.8	13.58**
• Unmarried	64.0	39.7		65.7	40.2		64.0	44.2	
Presence of Children									
• Child in home	55.9	54.9	0.17	52.5	52.2	0.01	46.6	48.0	0.07
• No children in home	44.1	45.1		47.5	47.8		53.4	52.0	

Table 4--Continued.

	Marijuana			Cocaine ^a			Other Drugs ^b		
	Black (452)	White (3774)	Chi square/t	Black (163)	White (1780)	Chi square/t	Black (106)	White (1762)	Chi square/t
Ease of obtaining drug									
• Impossible	4.8	3.9	1.32	4.3	9.0	53.52**	10.0	16.5	13.17**
• Difficult, but not impossible	14.9	16.5		5.6	30.7		42.3	54.5	
• Fairly or very easy	80.3	79.6		90.1	60.3		46.7	28.9	
How often see people under the influence of drugs in neighborhood?									
• Often	31.0	12.2	131.10**	37.0	14.2	56.73**	32.6	15.9	19.06**
• Occasionally	28.2	26.9		27.6	29.4		27.5	29.0	
• Rarely	20.6	30.7		21.4	28.8		23.5	27.7	
• Never	20.2	30.2		14.0	27.6		16.4	27.5	
How often see people selling drugs in neighborhood									
• Often	27.6	7.2	479.36**	32.1	3.8	243.18**	24.8	4.7	83.17**
• Occasionally	16.2	12.0		20.9	9.4		16.2	9.9	
• Rarely	14.6	76.9		17.4	13.1		21.4	13.0	
• Never	41.6			29.6	73.8		37.6	72.4	

^a In all forms^b Other drugs=the non-medical use of other hallucinogens, inhalants, stimulants, sedatives, analgesics or tranquilizers.^c N's (in parentheses) are weighted^d Daily use for at least 2 weeks corresponds to marijuana/cocaine, multi-drug use to the use of other drugs

• p > 0.05

** p > 0.01

discrepancy exists for both cocaine (a difference of 0.5 years) and the use of other drugs (a 0.9 year age gap), but not for marijuana.

Differences in income found to be significantly associated with continued use are evident across racial groups. Black income is roughly \$10,000 less than that of whites across all drug categories and is lowest among cocaine users. Interestingly, the average income for whites appears the largest for cocaine users (\$38,834 as opposed to \$37,590 and \$36,800, for marijuana and the use of other drugs, respectively). This discrepancy may reflect the difference in type of cocaine available to blacks and whites--crack versus powder, and the increased financial resources necessary to obtain powdered cocaine.

Education is distributed similarly across types of drugs. Blacks are less likely to be highly educated than are whites. Those who report ever using cocaine are the least likely to obtain a college education among both blacks and whites, though the difference is greater among blacks. This finding reinforces the suggestion made above that black and white cocaine users may be very different groups.

Race differences in adult roles status are consistent across drug categories. Blacks are more likely to be unemployed and unmarried than are whites regardless of the drug ever used. Unemployment varies among blacks from a high of 19.9 percent for cocaine users to a low of 16.1 percent for marijuana users, while the highest unemployment rate reported by whites is 6.4 percent for cocaine users. Marriage, too, appears little influenced by type of

drug ever used. Roughly 35 percent of blacks in this sample are married compared to between 55 and 60 percent of whites, depending on the drug. Surprisingly, no significant difference was found between blacks and whites regarding the presence of children in the family, though differences are apparent across drug categories. Roughly 55 percent of marijuana users were raising children, while 52 percent of cocaine users and approximately 47 percent of the users of other drugs held similar responsibilities. This may reflect the disproportionate representation of men in both the cocaine and other drug samples.

The last three variables reflect access and exposure to drugs and drug use. Significant relationships across racial groups were found for all variables and for each type of drug with the exception of the ease of obtaining marijuana. Approximately 80 percent of both black and white ever-users report that obtaining marijuana would be either fairly or very easy. Access to all other drugs was more difficult for whites. However, blacks report that cocaine is even easier to obtain than marijuana. Fully 90 percent of blacks report that cocaine is not at all difficult for them to obtain. This may contribute to the lack of discrepancy between the usage of marijuana and cocaine among blacks noted above. In addition, blacks have greater access than whites to other drugs. Only 28.9 percent of whites report relatively easy access to these drugs, compared to 46.7 percent of blacks.

Given the race differences in the self-reported availability of drugs, it is not surprising that blacks would report higher visibility of both drug use and sales in their neighborhoods. However, even taking that information into consideration the differences are stark, especially for those who ever used cocaine. Between 70 and 73 percent of whites report having, at least once, seen someone under the influence of drugs in their neighborhood and yet only about 25 percent report having ever witnessed drug sales there. Comparatively 80-86 percent of blacks have seen someone under the influence of drugs and between 60 and slightly more than 70 percent have been the witness to drug sales in their neighborhood.

The differences that exist between black and white ever users are not totally unexpected.¹ Given the disadvantaged position of blacks in terms of resources, adult social roles, and access to drugs, it is possible that controlling for these characteristics in a multivariate framework may eliminate any racial differences that exist in recency of use.

¹ Analyses, not presented here, were undertaken to determine if black ever-users are more significantly disadvantaged relative to black never-users than are white ever-users to their never-user counterparts, suggesting that use is more localized in the black community. This turns out not to be the case, in fact black ever-users are more like black never-users, than are whites. While the significance (or lack thereof) of test statistics is certainly, at least in part, attributable to the smaller sample size, it could also suggest that either 1) drug use is more prevalent across all strata in the black community or 2) that there is less variability among blacks in the characteristics examined. Given the results above regarding the similar impact of socio-demographic characteristics on drug use across racial groups, it is more likely that the latter is the case.

Table 5 presents the results of logistic regression analyses of both past year (Model I) and past month² (Model II) use of any drug³ on the characteristics discussed above, to 1) determine if, in this context, these variables are in fact related to non-continuation as measured by both past year and past month use, and 2) determine if their inclusion eliminates any race differences in non-continuation that exist in this data.

Of primary interest to this research is the impact of race on recency of use. Though slightly more likely to continue use into the past year as evidenced by the bivariate analysis of Table 2, blacks are no more likely than whites to continue use when examined in a multivariate context. However, controlling for socio-demographic characteristics, as well as measures of access, exposure, and previous use, does not eliminate the race differential in past month use. In fact, in this context blacks are nearly twice as likely as whites to report past month use. This may indicate that blacks who continue use are more regular users than are their white counterparts.

A number of notable differences in the characteristics associated with past year versus past month use are evident here. While both men and those with lower incomes are more likely to be past year users, other than race, age is

² Past month users are those who both used drugs in the past month and who used drugs more than once or twice in the past year, thus excluding those for whom past year use was restricted to the month in which they were interviewed. Therefore, past month use is viewed here as a reasonable measure of the relative regularity of use among individuals who have continued use.

³ Drug specific models present sample size problems.

Table 5. Results of Logistic Regression Analysis of Past Year and Past Month Use of Any Drug on Selected Characteristics, (NHSDA, 1993).

	Model I		Model II	
	Coefficient	OR	Coefficient	OR
Sociodemographic:				
Black	0.032	1.03	0.686**	1.98
Male	0.207*	1.23	0.374	1.45
Age	-0.014		-0.105**	
Total family income	-0.069**		-0.000	
Highest grade completed	0.021		-0.002	
Role:				
Married	-0.298**	0.74	-0.487**	0.62
Employed	-0.240*	0.79	-0.154	0.86
Presence of children	-0.295**	0.74	-0.591**	0.55
Access:				
Difficult to get marijuana	-0.659**	0.52	0.001	1.00
Difficult to get cocaine (a)	-0.040	0.96	0.001	1.00
Difficult to get other drugs (b)	-0.005	1.00	0.000	1.00
Exposure:				
Never see drug use	-0.134	0.88	-0.557**	0.57
Never see drug sales	-0.009	0.99	-0.386**	0.68
Involvement:				
Use of marijuana daily for > 2 weeks	0.902**	2.46	1.284**	3.61
Use of cocaine daily for > 2 weeks	0.506*	1.66	-0.112	0.89
Multiple other drug use	2.398**	11.01	1.433**	4.19
Age at first use of any drug	-0.067**		0.056**	
Intercept	1.447		1.704	
-2 Log likelihood	3964.457		2631.665	
c	0.812		0.795	

Omitted categories=white, female, unmarried, not employed, no children, relatively easy to get marijuana, cocaine, and other drugs, ever see drug use or sales in neighborhood, never use daily for more than 2 consecutive weeks, and only used one other type of drug marijuana or cocaine.

(a) In any form

(b) Other drugs= the non-medical use of other hallucinogens, inhalants, stimulants, sedatives, analgesics, or tranquilizers.

** p<0.01

* p<0.05

the only socio-demographic characteristic for which enough evidence exists to suggest that it is significantly associated with past month use. Older individuals are less likely to report past month use. Aging does not, however, significantly influence past year use. This suggests that while aging may reduce the frequency of use, it does not necessarily result in the non-continuation of drug use, at least through age 35. The adult roles of employment, marriage and parenting are all similarly related to past year use. Though both marriage and parenting show a stronger relationship to past month use than to use in the past year (with odds ratios of 0.74 versus 0.62 and 0.74 versus 0.55 for marriage and parenting, respectively), employment is significantly related only to use in the past year. Level of education is not significantly related to either past year or past month use.

Access and exposure are related to past year and month use, but in different ways. While access to marijuana plays a significant and positive role in past year use, access to none of the drugs examined here is significantly associated with more regular past month use. The odds of past month use for those who find drugs difficult to obtain are equal to those who have little trouble accessing drugs, resulting in an odds ratio of 1.0 in all three drug categories. However, for exposure, the opposite is true. Though significantly associated with an increase in the odds of past month use, exposure has little relationship to past year use. In the case of access, it may be suggested that though access may separate those who use at all from those who do not, it will vary less

between those who use occasionally and those who use more regularly. In the latter case, both groups obviously must have some access to drugs. Lack of exposure to pro-drug messages within one's neighborhood though, appears to be no protection against the continuation of use into the past year. It is indicated here however, that individuals who reside in neighborhoods where drug use and sales are never seen are considerably less likely to regularly use drugs.

Most measures of previous involvement with drugs included here are positively associated with both past year and past month use. Only the use of cocaine daily for more than 2 weeks is unrelated to past month use. And, only the age at first use has an opposite influence on each of the two use measures. While early age at first use is associated with an increase in the likelihood of continuation into the past year ($\beta = -0.067$), individuals who begin drug use later in life are more likely past month users ($\beta = 0.057$). Further research may uncover that the motivations for and circumstances surrounding the initiation into drug use are quite different in these two groups of users.

While past year users include those who have used drugs in the past month, a different pattern of relationships exists between past year and past month use and the characteristics examined here. Of foremost concern to this research, blacks and whites are equally likely to be past year users, however blacks are nearly twice as likely to report use in the past month. For this reason, and in order to diminish the potential for a change in role status occurring during the period in question, the remaining analysis will focus on past month use.

A test of homogeneity of structure (chi square=39.51, 17 DF) suggests that the drug use of blacks and whites is affected differently by the variables included in this model. Therefore, Models I, II, and III in Table 6 present, respectively, a pooled model and separate logistic regression models for blacks and whites. These models are presented in order to examine the differential impact that the independent variables have on the recent drug use of blacks and whites.

From a comparison of the race-specific models with the pooled model it is evident that the significant relationships reported in Model I are primarily the result of the strength of the relationships in the white population. The relationships deemed significant in the pooled model are similarly significant in the white-only model. However, for blacks, there is only enough evidence to suggest that sex, marriage and high levels of previous involvement (specifically, the extensive use of marijuana and other drugs) are significantly associated with the past month use of any drug.⁴

Marriage may have a stronger impact on blacks than on whites, given the relative odds of 0.39 and 0.67, respectively. Previous involvement however, appears to be a stronger predictor of white drug use. The odds ratios for the

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To some extent this is the result of the smaller representation of blacks in this sample. For example, though the odds ratio for exposure to drug sales is identical for both blacks and white, this measure of exposure is significant at the 0.01 level for whites and non-significant for blacks. Despite the efforts at oversampling in this data collection project, the sample size for blacks continues to prove somewhat less than adequate in a multivariate context.

Table 6. Results of Logistic Regression Analysis of Past Month Use of Any Drug on Selected Characteristics, (NHSDA, 1993).

	Model I		Model II-Black		Model III-White	
	Coefficient	OR	Coefficient	OR	Coefficient	OR
Sociodemographic:						
Male	0.389 **	1.48			0.377 **	1.46
Age	-0.101 **		0.420 *	1.52	-0.113 **	
Total family income	-0.002		-0.069		0.000	
Highest grade completed	-0.152 **		-0.000		-0.164 **	
Role:						
Married	-0.557 **	0.57	-0.947 **	0.39	-0.404 **	0.67
Employed	-0.192	0.83	-0.381	0.68	-0.078	0.93
Presence of children	-0.554 **	0.58	-0.123	0.88	-0.675 **	0.51
Access:						
Difficult to get marijuana	-0.452 **	0.64	-0.098	0.91	-0.559 **	0.57
Difficult to get cocaine (a)	0.132	1.14	0.149	1.16	0.182	1.20
Difficult to get other drugs (b)	0.384 **	1.47	-0.130	0.88	0.562 **	1.75
Exposure:						
Never see drug use	-0.534 **	0.59	0.034	1.04	-0.640 **	0.53
Never see drug sales	-0.475 **	0.62	-0.421	0.66	-0.417 **	0.66
Involvement:						
Use of marijuana daily for > 2 weeks	1.276 **	3.58	0.999 **	2.72	1.340 **	3.82
Use of cocaine daily for > 2 weeks	-0.127	0.88	0.208	1.23	-0.165	0.85
Multiple other drug use	1.349 **	3.86	1.027 *	2.79	1.472 **	4.36
Age at first use of any drug	0.065 **		0.046		0.057 **	
Intercept	1.832		0.424		1.962	
-2 Log likelihood	2649.408		386.108		2223.792	
c	0.789		0.718		0.815	

Table 6. Continued.

Omitted categories=female, unmarried, not employed, no children, relatively easy to get marijuana, cocaine, and other drugs, ever see drug use or sales in neighborhood, never use daily for more than 2 consecutive weeks, and only used one other type of drug.

(a) In any form

(b) Other drugs= the non-medical use of other hallucinogens, inhalants, stimulants, sedatives, analgesics, or tranquilizers.

** $p < 0.01$

* $p < 0.05$

consistent use of marijuana and other drugs are respectively, 40 and 57 percent greater for whites.

It must be noted that all results presented in Tables 2-6 are based on a sub-sample of individuals who reported having ever used any of the drugs included in this analysis. Thus, because this analysis (and the analyses to follow) are based on censored data, parameter estimates are biased⁵. The choice of sample was based on a desire for consistency between the previous analysis and that which follows. Unfortunately, the ensuing analytical technique does not both handle censored data and account for the special distributional aspects of this data, simultaneously.

With this caveat in mind, the previous six tables depict the results of an analysis of the relationship between race, role status, and the continuation of drug use. The interrelationships between these factors and the indirect effects of these factors on past month drug use will be addressed in the LISREL (Jorskog and Sorbom, 1989) analysis that follows.

LISREL is designed to allow for adjustments to the data to account for any violations of the assumption of distributional normality that are the cornerstone of statistical analysis. Preliminary to the formal analysis, the raw data were

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This bias reflects the use of non-conditional probabilities such that the estimates are not weighted by the probability of previous use. To the extent that the variables are associated with both previous use and continued use the parameter estimates will represent either over or under estimates of the true impact of the variable on drug use. For example, because blacks are less likely to be included in the sample of ever-users the conditional probability of continued use for blacks is lower than is reported here, making the coefficient on race an over estimate of continuation in the population as a whole as can be seen in Appendix A where the estimated coefficients based on censored data are presented.

made accessible to the LISREL program with the use of PRELIS. This program, as the name implies, prepares the raw data for analysis by generating the covariance and correlation matrices required by LISREL. For this analysis two matrices were generated— a polychoric correlation matrix (included as Appendix B) of the variables included in the model and an asymptotic covariance matrix of the polychoric correlations. The polychoric correlation estimation technique is recommended for use with both ordinal and dichotomous variables as it does not assume a bivariate normal distribution among the observed variables, but rather uses maximum likelihood techniques to generate correlations based on a latent bivariate normal distribution (Jorskog and Sorbom, 1989). Though supported by some, and likely the best technique for this type of data widely available, this technique is not without its drawbacks. It requires very large sample sizes (although information on a specific minimum are equivocal) and the impact of the violation of the assumptions of the latent distribution on parameter estimates is, as yet, undetermined (Muthen, 1993).

The issue of non-normality is further addressed in the estimation of structural parameters. Asymptotically distribution free estimates (Brown, 1984) were generated with the use of a weighted least squares estimation technique (the asymptotic covariance matrix produced by PRELIS served as the weight matrix). The pitfall of this estimation technique is in its lack of consistency in producing acceptable chi-square statistics of fit in other than exceptionally large samples (Hu and Bentler, 1995). Most fit statistics based on ADF estimates in

less than ideal circumstances tend to reject models unnecessarily. However, according to Hu and Bentler (1995) the GFI (goodness of fit) index produced by LISREL performs moderately well in this situation, and thus, will be presented along with the traditional chi-square statistic.

A pooled LISREL model that included the factors in the logistic regression model above was found to fit the data very poorly (Chi square=4296.07, 48 DF, $p=0.0$). This is not unexpected in light of the significance of the test of homogeneity of structure in the logistic regression analysis. Thus, the following results are based on the LISREL analysis of multi-group data that allowed for the parameters estimated in the model to vary across the two groups. The only socio-demographic variable proven to have a significant effect on use after controlling for the interrelationship between the components of Winick's theory was sex. Thus for this reason, and for the sake of ease of presentation of this complex model, it alone is retained as the exogenous variable in the model that follows.

First, the baseline model (displayed in Figure 4 and included in Appendix E) was defined such that model parameters were allowed to vary between groups. Increasingly more restrictive equality constraints were then imposed across race groups. Chi-square difference tests were then performed relative to the baseline model to determine the benefit to the model of imposing these constraints. The variation across race groups was minimal, though significant,

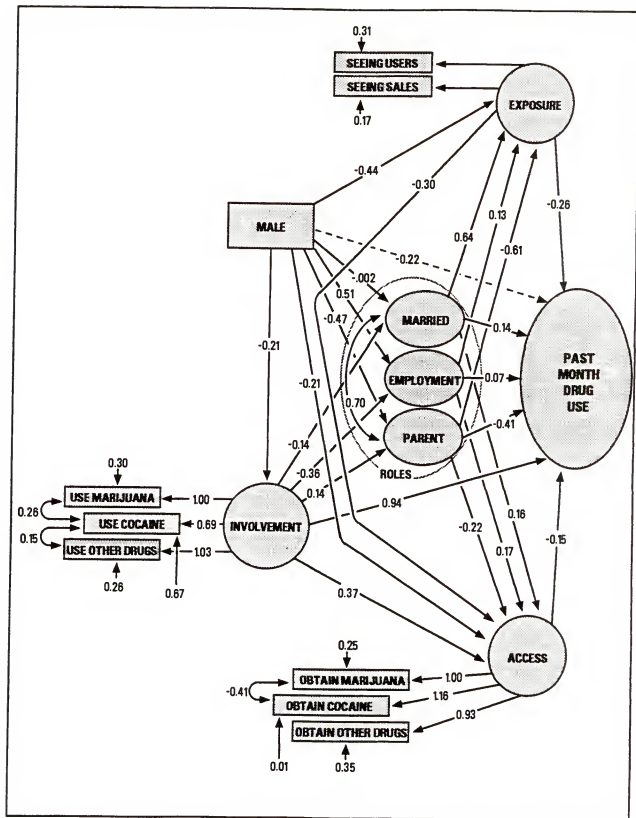


Figure 4. Baseline Model--Pooled

and thus the parameter estimates for both the blacks and white models will be presented.

The multi-group model was a significant improvement in fit to the data (Chi square=459.58, DF 122, $p=0.0$, GFI=0.97). However, the model for blacks contributed 36 percent of the total chi-square suggesting that the fit was better for whites than for blacks. Furthermore, the chi-square did not reach statistical significance. The extent to which this is an artifact of the estimation technique as opposed to a poor model fit is unknown, though the GFI index suggests that the estimation technique may be at least partly responsible.⁶

The LISREL model consists of two components: The measurement model, that includes the factor loadings and error variances for the predictors and the ultimate exogenous variable, past month use, is presented in Appendix D; and the structural model consisting of the direct and indirect effects of the latent variables on past month drug use and on each other that is presented in Tables 7 and 8, for blacks and whites, respectively. Because most of the estimates are the same for both blacks and whites, the following discussion will focus on the parameter estimates for blacks (shown in Table 7) noting, when appropriate, the differences in the parameter estimates for whites.

⁶ Weighted least square estimates of chi square that rely on asymptotically distribution free (ADF) techniques are inconsistent and tend to reject models unnecessarily in other than exceptionally large samples (Hu and Bentler, 1995). According to these researchers, the GFI (goodness of fit) index produced by LISREL performs moderately well in conjunction with ADF, regardless of sample size and thus, is a more reliable representation of model fit in this case.

Table 7. Results of Multi-group LISREL Analysis—Direct (DE), Indirect (IE), and Total Effects (TE) of Eta and X on Eta—Blacks.

Use	ETA					X	
	Access	Exposure	Marriage	Employment	Parent	Involvement	Male
Use	DE	-0.14 (-3.93)	-0.25 (-5.50)	0.13 (1.27)	-0.38 (-3.37)	0.95 (14.62)	-0.19 (-2.26)
	IE	—	0.04 (3.50)	-0.14 (-4.34)	0.14 (4.12)	-0.10 (-3.13)	0.50 (6.16)
	TE	-0.14 (-3.93)	-0.21 (-5.02)	-0.02 (-0.20)	-0.24 (-2.48)	0.85 (18.51)	0.31 (7.37)
Access	DE	—	-0.29 (-10.61)	0.10 (1.52)	-0.15 (-2.06)	0.35 (8.50)	-0.18 (-3.30)
	IE	—	—	-0.18 (-6.39)	0.04 (-4.04)	-0.01 (-0.70)	0.18 (3.56)
	TE	—	-0.29 (-10.61)	-0.08 (-1.38)	0.01 (0.46)	0.34 (10.30)	0.00 (0.16)
Exposure	DE	—	—	0.61 (8.21)	-0.57 (-6.70)	—	-0.29 (-3.29)
	IE	—	—	—	—	-0.09 (-4.13)	0.31 (5.51)
	TE	—	—	0.61 (8.21)	-0.57 (-6.70)	-0.09 (-4.13)	0.01 (0.26)
Marriage	DE	—	—	—	—	0.09 (1.02)	-0.04 (-1.31)
	IE	—	—	—	—	—	0.03 (2.39)
	TE	—	—	—	—	0.09 (1.02)	-0.01 (-0.39)
Employment	DE	—	—	—	—	-0.37 (-8.62)	-0.07 (-0.80)
	IE	—	—	—	—	—	-0.11 (-6.82)
	TE	—	—	—	—	-0.37 (-8.62)	-0.18 (-6.99)
Parent	DE	—	—	—	—	0.17 (4.68)	-0.64 (-14.90)
	IE	—	—	—	—	—	0.05 (4.21)
	TE	—	—	—	—	0.17 (4.68)	-0.59 (-25.50)
Involvement	DE	—	—	—	—	—	0.30 (13.61)
	IE	—	—	—	—	—	—
	TE	—	—	—	—	—	0.30 (13.61)

Notes: First number is parameter estimate, number in parentheses is the ratio of the parameter estimate to standard error. Ratios exceeding 2.32 reflect $p < 0.01$ and are in *italics*. Unequal estimates for blacks & whites in **bold**.

Table 8. Results of Multi-group LISREL Analysis--Direct (DE), Indirect (IE), and Total Effects (TE) of Eta and X on Eta--Whites.

Use	ETA				X			
	Access	Exposure	Marriage	Employment	Parent	Involvement	Male	
Access	DE	-0.14 (-3.93)	-0.25 (-5.50)	0.13 (1.27)	0.07 (1.46)	-0.38 (-3.37)	-0.19 (-2.26)	
	IE	—	0.04 (3.50)	-0.14 (-4.34)	-0.06 (-4.16)	0.14 (4.12)	0.50 (0.67)	
	TE	-0.14 (-3.93)	-0.21 (-5.02)	-0.02 (-0.20)	0.01 (0.24)	-0.24 (-2.48)	0.31 (10.05)	
Exposure	DE	—	-0.29 (-10.61)	0.10 (1.52)	0.19 (5.90)	-0.15 (-2.06)	-0.18 (-3.30)	
	IE	—	—	-0.18 (-6.39)	-0.04 (-4.04)	0.16 (5.58)	0.30 (6.29)	
	TE	—	-0.29 (-10.61)	-0.08 (-1.38)	0.14 (4.83)	0.01 (0.20)	0.12 (6.83)	
Marriage	DE	—	—	0.61 (8.21)	0.14 (4.30)	-0.57 (-6.70)	-0.45 (-10.78)	
	IE	—	—	—	—	—	0.25 (7.10)	
	TE	—	—	0.61 (8.21)	0.14 (4.30)	-0.57 (-6.70)	-0.21 (-8.20)	
Employment	DE	—	—	—	—	-0.14 (-3.91)	-0.04 (-1.31)	
	IE	—	—	—	—	—	-0.04 (-3.83)	
	TE	—	—	—	—	-0.14 (-3.91)	-0.08 (-3.18)	
Parent	DE	—	—	—	—	-0.37 (-8.62)	0.55 (17.90)	
	IE	—	—	—	—	—	-0.11 (-6.82)	
	TE	—	—	—	—	-0.37 (-8.62)	0.43 (16.71)	
Involvement	DE	—	—	—	—	0.17 (4.88)	-0.46 (-17.53)	
	IE	—	—	—	—	—	0.05 (4.21)	
	TE	—	—	—	—	0.17 (4.68)	-0.41 (-17.57)	
Male	DE	—	—	—	—	—	0.30 (13.61)	
	IE	—	—	—	—	—	—	
	TE	—	—	—	—	—	0.30 (13.61)	

Notes: First number is parameter estimate, number in parentheses is the ratio of the parameter estimate to standard error. Ratios exceeding 2.32 reflect $p < 0.01$ and are in italics. Unequal estimates for blacks & whites in bold.

Four of the six exogenous latent predictors directly and significantly influenced past month use for both blacks and whites: access, exposure, parenting, and involvement. The effects of lack of exposure (-0.25), and previous intense involvement (0.95) are in the expected direction, such that lack of exposure reduces the likelihood of use, while previous involvement tends to increase that likelihood. However, access, as measured by the ease of obtaining marijuana, cocaine and other drugs is negatively associated with past month use (-0.14). This may be the result, as discussed in the bivariate analysis, of the relatively high drug use among those who report some difficulty in obtaining other drugs. And, may indicate that much of the use of other drugs consists of the non-medical use of drugs acquired through a prescription—a route of acquisition that may prove somewhat difficult, but obviously not impossible, for the user. The relatively small indirect effects of these variables on use accounts for the similarity of the direct and total effects in both significance and direction.

Of the role-related variables—marriage, employment, and parenting, only parenting had a significant and negative direct effects on use. While marriage and employment had no significant direct effect for either blacks or whites, all three variables had significant indirect effects on use for both groups. Again, only parenting had a significant total effect on use (-0.24). This is the case for both blacks and whites, and suggests that the mechanism by which these roles

influence use is, for the most part, captured by their impact on exposure and/or access.

Both marriage (0.61) and employment (0.14) are associated with marked decreases in exposure for both blacks and whites. Additionally, for whites alone, employment significantly influences access (0.19). Parenting has no effect on access, though it does have a significant and negative effect on lack of exposure for both groups. The presence of children in the home increases the likelihood of exposure to drug sales and use in one's neighborhood. Though surprising, this may be related to the trend for the more affluent to either delay having children or to opt out of parenthood, altogether. However, the direct effect of parenting on exposure and the subsequent indirect effect of parenting on use did not diminish the total effect of parenting. As mentioned above, parenting is the only role-related for which the total effect is to significantly reduce the likelihood of past month use (-0.24).

In addition to the direct relationship between the role variables and both access and exposure, marriage, employment and parenting each have an indirect influence on access through exposure. Though only employment maintains a significant total effect on access, and only for whites, as indicated by the parameter estimate of 0.14 and the corresponding t-value of 4.83 shown in Table 8. This lack of influence on access for blacks may reflect the relatively high degree of access to drugs reported by blacks in this sample.

Access is also significantly influenced by previous involvement in drug use. Both black and white individuals who report drug use at the levels measured here are significantly more likely to have easy access to drugs than those not so involved. Exposure, too, is influenced significantly by involvement, though not directly. The significant total effect of involvement on exposure (-0.09 for blacks and -0.24 for whites) is a result of the indirect effect through roles.

Involvement is significantly related to parenting, employment, and, marriage. The relationship of parenting with previous involvement is another example of the unanticipated relationship between this role and drug use. Although intense previous involvement in drug use negatively effects marriage (-0.14, for whites only) and employment (-0.37, for both groups), it has the opposite effect on parenthood (0.17, for blacks and whites, alike). Persons with these drug histories are more likely to reside with either their own children or their stepchildren than are those without such histories. This may be the result of early sexual activity and teen parenting associated with adolescent drug use (Cotler, Helzer, and Tipp, 1990). However, because the data do not provide information on age of children, this suggestion is only speculative and cannot be investigated empirically.

Sex (measured as male), the only truly exogenous variable in this model, has, only a very modest direct effect on use (-.19), non-significant at the 0.01 level. Though, via significant relationships with most of the other variables in

this model (marriage and employment being the only exception for blacks, while for whites, marriage is the only non-significant relationship), sex is indirectly and positively associated with past month use for both blacks and whites (0.50).

This results in the significant total effect of sex on use of 0.31 ($t=10.05$).

Primarily through increased access and exposure, men are more likely than women to continue drug use into the past month.

Although many of the relationships depicted in the previous analysis are similar for both blacks and whites, a number of differences exist. These differences are particularly concentrated in the areas of employment and involvement, and the impact of sex on drug use. For the most part these differences entail a significant relationship for whites where no such relationship exists for blacks. This is not unlike that found in the logistic regression analysis. However, in one instance the effect is significant for whites but not for blacks, as in the case of the indirect effect of involvement on use. And, in a couple of instances the effect for blacks is actually opposite that for whites. This is the case for the indirect effect of sex on marriage (negative for blacks and positive for whites), and the total effect of sex on employment that is again, negative for blacks, while positive for whites. These findings reinforce the need for minority drug research that seeks to understand the relationships between factors whose influence is understood, as of yet, primarily in the context of white drug use. Some directions ripe for further study, in addition to a discussion of the highlights of this exploratory investigation, will be undertaken in the following section.

CHAPTER 6

DISCUSSION

Summary

The drug use of black adults has been reported to be significantly greater than that of whites (Substance Abuse and Mental Health Services Administration, 1997). Furthermore, the most serious consequences of drug use are disproportionately felt by minority populations (Inciardi, 1986; McCaig, 1996; Rosenberg, 1996, Smith, 1993). In order to address the serious health threat of drug use in the black community, recent public policy has resulted in increased resources devoted to reducing initiation into drug use by minority youth (De La Rosa and Recio Arandos, 1993). This is the case despite the fact that adolescent drug research finds black adolescents significantly less likely drug users than their white counterparts (Allen and Page, 1994; Austin, 1988; Austin and Gilbert, 1989; Austin, Prendergast, and Lee, 1989; Byram and Fly, 1984; Harford, 1986; Kandel, Single, and Kessler, 1976; Mensch and Kandel, 1988; Welte and Barnes, 1987; Oetting and Beauvais, 1990; Prendergast, et al., 1989; National Institute on Drug Abuse, 1990). Evidently, the relatively higher rates of negative drug outcomes in the black community are not the result of higher rates of initiation among blacks in adolescence--the age when the majority of drug

initiation occurs, and yet the research community has not investigated alternative mechanisms.

A number of possible explanations for this phenomenon have been suggested and examined in this research (both logically and empirically)--including the possibility of later-life initiation among blacks, more intense patterns of use among blacks, and differences in rates of non-continuation.

By both presenting the research results of others and by examining data from the National Household Survey on Drug Abuse (1993), this research has determined that neither differences in patterns of initiation nor characteristics of use can explain the high adult use of this population. While blacks are more likely than whites to initiate drug use at a slightly later age, at no age are blacks in the general population more likely than whites to use drugs. Nor do the characteristics of users vary significantly across these groups. Blacks who report ever using drugs are no more likely than whites to have ever used marijuana, cocaine, or other drugs regularly for an extended period of time, nor are they more likely to use these drugs more heavily.

Among individuals who report ever using drugs however, blacks do demonstrate different rates of non-continuation. These differences are especially noticeable in regards to past month use, suggesting that while whites may be only slightly less likely to continue drug use into the adulthood, their drug use may be more sporadic than that of their black counterparts.

Using a framework proposed by Charles Winick (1962), this research examined the possibility that differences in adult role status, access to drugs, and exposure to the drug related activities of others may contribute to these different patterns of adult use. Race differences in role status, exposure, and access are evident in this sample. Blacks are less likely to be either employed or married, though no less likely to be shouldering the daily responsibilities of parenting, and are more likely to be directly exposed to both the drug use of others and to drug sales than are whites. However, these influences do not explain the differences in the most recent use. Among individuals similarly situated with regard to these characteristics, blacks are nearly twice as likely to report past month use. Furthermore, while these factors are related to the reduction in drug use of whites, there is little evidence to support the significant influence in the non-continuation of drug use by blacks.

In an effort to further develop Winick's framework, the interrelationships between these factors were also examined. This examination supports the hypothesis that roles, access, and exposure are interrelated, providing at least a partial explanation of the mechanism by which these factors influence drug use. However, this research also indicates that though Winick placed a primary emphasis on role status, the impact of adult roles on continued drug use is predominantly determined by the extent to which adult roles are an effective protection against both opportunity and social support for the use of drugs. While Winick suggests, in the case of Vietnam veterans for example, that the

increased drug use of the enlisted personnel versus that of officers was a result of differential role strain, this research suggests that these differences may be better attributed to the relative ineffectiveness of the enlisted position in reducing access and exposure to drugs. To extend this to the focus of this research it can be suggested that the lack of a significant impact of adult roles on the drug use of blacks can possibly be explained by the powerlessness of these roles to influence changes in either exposure or access for adults. An examination of the power of familial responsibilities to provide protection against exposure to drug use by adolescents may provide insight into the differences in adolescent use.

Limitations of this Research

The availability of data and analytical tools with which to answer the questions posed in this research is limited. Thus, restricting its power to support definitive conclusions regarding the relationships examined here. First, data from the National Household Survey on Drug Abuse (NHSDA) represent a cross-sectional rather than a longitudinal sample. Any suggestions regarding the direction of the effects examined here are not conclusive. They are based on the logic of the theoretical framework and remain to be tested in a longitudinal context. Second, data from the NHSDA are based on self-reports of drug use, the validity of which are disputed (see for example, Wallace and Bachman, 1991; Fendrich and Vaughn, 1994). However, given the greater likelihood of black over white adults to report use here, the suggestion that race differences

in use might be attributable to an unwillingness on the part of minorities to self-report is suspect. Therefore, the impact of error in self-report should not effect any variation reported here across racial groups. Third, some of the variables examined in this research (e. g., age at first use, and most recent use) require retrospection and thus are open to differential recall. Though this should also not influence relative rates, it reinforces the fact that the rates of drug use reported here are estimates and should be approached with caution.

Also of potential influence on rates (both relative and specific) is the sampling frame. The NHSDA sample is representative only of the non-institutionalized population of the United States. Thus, to the extent that blacks are over-represented in the institutionalized population, the general population of blacks is under-represented in this sample. However, given that the illegal drug use of individuals residing in institutions (hospital, prisons, etc.) is restricted by virtue of their institutionalization, the inclusion of these individuals should only to serve to increase the rates of non-continuation in the black population.

Additionally, the ability of the analytical tools available to examine the questions posed here also limits this analysis. As mentioned earlier, although LISREL is a powerful tool for examining the interrelationships between variables in this research, it is not able to handle censored data of this nature. Thus, the preceding analyses are primarily based on a subsample of individuals who reported previous drug use, and the conditional nature of continued use

(depending on the decision to use in the first place) cannot be incorporated in these analyses. Lastly, little could be said about the influence of the factors examined here on the drug use of blacks. As discussed above, it may well be that these factors are of little consequence in the continuation of drug use within this population. However, despite efforts at oversampling, the small numbers of blacks in this sample raise a question as to whether these findings represent true differences or are merely the result of a lack of sufficient evidence that a larger sample would provide.

Directions for Future Research

This research attempts to address in a preliminary way, but one component of the seeming paradox that underlies the differences in drug use between blacks and whites--the influence of role status and the process of non-continuation in a cross-sectional sample. Future research specific to the topic of race differences in non-continuation could strengthen these findings by collecting detailed data on changes in drug use patterns, as well as in life circumstances and environmental conditions over time. A longitudinal survey focused on these issues with a sample large enough to make comparisons across racial groups would allow for a broader examination of issues related to race differences in drug use patterns. Further, there appears to be some evidence here that non-continuation is a process rather than an event. A

longitudinal study would allow future researchers to examine this process in the context of both the individual situation and that of various groups.

In addition to a longitudinal focus, specific sub-populations require additional attention. Despite attempts at controlling for a myriad of possible influences, including residence (Bachman et al., 1991; Albrecht, Amey, and Miller, 1996), family structure and functioning (Byram and Fly, 1984; Amey and Albrecht, forthcoming), and religiosity (Amey, Albrecht, and Miller, 1996), research has yet to explain race differences in drug use in the adolescent population. The importance of roles highlighted in this research coupled with the suggestion in the literature that black adolescents are expected to assume considerable family responsibilities at a relatively young age (Bart and Levine, 1978; Weiss, 1979; Randolph, 1991) provides a basis for future investigations. In addition, given the different expectations that traditional gender roles place on men and women, it may prove fruitful to examine the non-continuation patterns of these groups separately.

The influence of community context on the impact of the variables evaluated in this model would prove timely in light of the growing concern over structural influences on social processes and the development of methodological tools designed to address these issues. This research fails to examine the source of role differences across racial groups. Knowledge of the function that the opportunity structure performs in influencing adult role transitions and thus indirectly differential patterns of adult drug use would be most beneficial to

further explicating the mechanism by which group differences in non-continuation may occur. Additionally, the impact of roles on drug use may vary across community contexts. For example, if unemployment rates are high in a particular time or place the employment status of the individual may prove more salient in predicting drug use than it would be if unemployment was experienced in the context of a stronger economic environment. Lastly, if, as suggested above, the importance of roles lie primarily in their ability to provide protection from access and exposure to drug use, then the characteristics of the community may prove extremely important. The significance of context lies not only in the extent to which drug use is supported within the community, but also in the variability with which communities provide the resources necessary to support individuals as they attempt to carry out the responsibilities of adult roles.

Implications for Policy

Drug policy in the U.S. has three primary foci that relate to the reduction of both the supply and the demand for drugs. These include 1) the reduction of initiation--primarily demand focused, 2) the dispensation of users--addressed at both supply and demand, and 3) the reduction of available drugs--obviously, a supply issue. The reduction of initiation is primarily aimed at youth through educational programs regarding the dangers of drugs and activities designed to provide alternative opportunities to drug related involvements. The dispensation of the drug users has involved both the law enforcement and medical

communities. Legislation designed to both reduce individual use and access through sales seeks primarily to punish the individual involved in drug related activities and to provide a deterrent to those who may contemplate drug use. Reducing the supply of drugs at both the national and international levels is also the domain of the law enforcement community, while the activities of the medical community focus primarily on the treatment issues related to problem use.

These activities related to both the supply and demand for drugs fail to incorporate the factors associated with the reduced demand for drugs that is evident among individuals as they age. Though a relatively few adults continue to use drugs, at least to such an extent that use becomes a serious problem, it is adults who are most likely to suffer serious drug related consequences (SAMHSA, 1996). It seems logical, therefore, that initiation into drug use is not the primary source of drug related problems, but that these problems are, for the most part, the result of the continued regular use of drugs into adulthood. While it is true that if we can eliminate initiation, continuation is not a problem, the fact that nearly 60% of U.S. adults have used drugs is evidence of our failure in this regard and points out the necessity of an alternative focus.

Non-continuation provides such an alternative. Future research that supports a policy focus on the issues related to the use (or lack thereof) of drugs by adults, in addition to current activities, may provide a fruitful avenue for the prevention of a significant proportion of the drug related problems experienced each year in this country, and may be particularly beneficial to

communities in which non-continuation appears especially low, including but not limited to minority communities. Therefore, it is the recommendation of this research that in order to successfully reduce the most serious problems associated with drug use, policy makers must support a multifaceted approach that includes a further examination of the issues of non-continuation raised in this preliminary investigation.

APPENDIX A

RESULTS OF CENSORED TOBIT ANALYSIS

Past Month Use of Any Drug on Selected Characteristics, N= 7035 (NHSDA, 1993).

	Coefficient	Standard Error
Sociodemographic:		
Black	-0.003	0.012
Male	0.022	0.007 **
Age	-0.007	0.001 **
Total family income	-0.000	0.000
Highest grade completed	-0.009	0.002 **
Role:		
Married	-0.023	0.008 **
Employed	-0.012	0.009
Presence of children	-0.027	0.008 **
Access:		
Difficult to get marijuana	-0.030	0.009 **
Difficult to get cocaine (a)	0.006	0.009
Difficult to get other drugs (b)	0.015	0.009
Exposure:		
Never see drug use	-0.010	0.008
Never see drug sales	-0.030	0.009 **
Involvement:		
Use of marijuana daily for > 2 weeks	0.123	0.010 **
Use of cocaine daily for > 2 weeks	0.014	0.016
Multiple other drug use	0.122	0.010 **
Age at first use of any drug	0.025	0.001 **
Intercept	-0.022	
-2 Log likelihood	1980.550	

Omitted categories=white, female, unmarried, not employed, no children,

relatively easy to get marijuana, cocaine, and other drugs, ever see drug use or sales in neighborhood, never use daily for more than 2 consecutive weeks, and only used one other type of drug marijuana or cocaine.

(a) In any form

(b) Other drugs= the non-medical use of other hallucinogens, inhalants, stimulants, sedatives, analgesics, or tranquilizers.

** $p < 0.01$

* $p < 0.05$

APPENDIX B

POLYCHORIC CORRELATION MATRICES FOR LISREL ANALYSIS

POLYCHORIC CORRELATION MATRICES FOR LISREL ANALYSIS

Polychoric correlation matrix--whites

	var1	var2	var3	var4	var5	var6	var7	var8	var9	var10	var11	var12	var13
var1	1.00												
var2	0.73	1.00											
var3	0.69	0.82	1.00										
var4	0.28	0.26	0.14	1.00									
var5	0.30	0.38	0.21	0.75	1.00								
var6	0.17	0.25	0.19	0.69	0.62	1.00							
var7	-0.33	-0.35	-0.32	-0.24	-0.29	-0.20	1.00						
var8	0.27	0.08	-0.01	0.58	0.35	0.59	-0.29	1.00					
var9	-0.15	-0.08	-0.04	-0.08	-0.05	-0.07	0.18	-0.28	1.00				
var10	0.12	0.14	0.10	-0.12	-0.02	-0.06	0.05	-0.02	-0.05	1.00			
var11	-0.11	-0.06	-0.06	-0.03	0.03	-0.02	0.08	-0.27	0.72	-0.27	1.00		
var12	-0.23	-0.25	-0.20	-0.21	-0.25	-0.21	0.74	-0.29	0.16	0.03	0.05	1.00	
var13	0.12	0.10	0.06	0.27	0.11	0.22	-0.13	0.26	-0.13	0.42	-0.35	-0.13	1.00

APPENDIX C

VARIANCE-COVARIANCE MATRIX OF ERROR ON LATENT VARIABLES

Variance-Covariance Matrix of Error on Latent Variables--Equation Error (PSI)

	access	involve	exposed	use	married	employed	parent
access	0.57 (0.03) 17.70						
involve	—	0.62 (0.03) 20.48					
exposed	—	-0.18 (0.03) -7.10	0.84 (0.05) 17.62				
use	—	—	—	0.39 (0.04) 9.48			
married	—	—	—	—	0.99 (0.02) 40.86		
employed	—	—	—	—	—	0.78 (0.03) 22.53	
parent	—	—	—	—	0.68 (0.02) 40.09	—	0.82 (0.03) 26.96

APPENDIX D

LISREL ESTIMATES OF FACTOR LOADINGS AND ERROR VARIANCES OF INDICATOR VARIABLES

LISREL Estimates of Factor Loadings and Error Variances (TE) of Indicator Variables For Blacks and Whites (Exceptions Noted by *).

	1	2	3	4	5	6	7	TE
Roles:								
1. Married	1.00	--	--	--	--	--	--	--
2. Employed	--	1.00	--	--	--	--	--	--
3. Parent	--	--	1.00	--	--	--	--	--
Access:								
4. Difficulty in obtaining marijuana	--	--	--	1.00	--	--	--	0.26 (6.18)
Difficulty in obtaining cocaine (a)	--	--	--	1.16 (71.80)	--	--	--	0.01 (0.15)
Difficulty in obtaining other drugs (b)	--	--	--	0.95 (22.49)	--	--	--	0.34 (8.84)
Exposure:								
5. Frequency of seeing drug users	--	--	--	--	1.00	--	--	0.41 (10.37)*
Frequency of seeing drug sales	--	--	--	--	0.79 (20.57)*	--	--	0.07 (1.34)
Involvement:								
6. Use of marijuana daily for > 2 weeks	--	--	--	--	--	1.00	--	0.31 (7.99)
Use of cocaine daily for > 2 weeks	--	--	--	--	--	0.65 (13.51)*	--	0.70 (14.28)
Multiple other drug use	--	--	--	--	--	1.05 (28.23)*	--	0.23 (5.59)*
Use								
7. Past month use	--	--	--	--	--	--	1.00	--

* Parameter estimate for blacks varies significantly and is displayed in Table 6b.

Notes: First number is parameter estimate, number in parentheses is the ratio of the parameter estimate to standard error.

Significantly Different Factor Loadings and Error Variances (TE) for Blacks.

	5	6	TE
5. Exposure:			
Frequency of seeing drug users			0.20 (2.13)
Frequency of seeing drug sales	0.96 (16.89)		
6. Involvement:			
Use of marijuana daily for > 2 weeks		0.67 (8.98)	
Use of cocaine daily for > 2 weeks		0.57 (5.78)	
Multiple other drug use			0.77 (7.61)

APPENDIX E

RESULTS OF MULTI-GROUP LISREL ANALYSIS--POOLED MODEL

Results of Multi-group LISREL Analysis--Direct (DE), Indirect (IE), and Total Effects (TE) of Eta and X on Eta --Pooled Model.

Use		ETA			X		
		Access	Exposure	Marriage	Employment	Parent	Involvement
Use	DE	-0.15 (-3.98)	-0.26 (-5.19)	0.14 (1.19)	0.07 (1.45)	-0.41 (-2.97)	0.94 (14.23)
	IE	—	0.04 (3.51)	-0.16 (-4.19)	-0.05 (-3.88)	0.17 (4.01)	-0.09 (-1.97)
	TE	-0.15 (-3.98)	-0.22 (-4.71)	-0.02 (-0.22)	0.02 (0.37)	-0.24 (-2.10)	0.85 (22.54)
Access	DE	—	-0.30 (-10.09)	0.16 (2.07)	0.17 (5.18)	-0.22 (-2.57)	0.37 (8.95)
	IE	—	—	-0.19 (-8.01)	-0.04 (-3.75)	0.19 (5.34)	-0.05 (-1.78)
	TE	—	-0.30 (-10.09)	-0.04 (-0.57)	0.13 (4.21)	-0.04 (-0.49)	0.33 (12.24)
Exposure	DE	—	—	0.64 (7.97)	0.13 (3.99)	-0.61 (-6.65)	—
	IE	—	—	—	—	—	-0.44 (-9.74)
	TE	—	—	0.64 (7.97)	0.13 (3.99)	-0.61 (-6.65)	-0.23 (-8.69)
Marriage	DE	—	—	—	—	—	-0.23 (-8.69)
	IE	—	—	—	—	—	-0.14 (-4.03)
	TE	—	—	—	—	—	-0.14 (-4.03)
Employment	DE	—	—	—	—	—	-0.36 (-8.71)
	IE	—	—	—	—	—	-0.10 (-6.61)
	TE	—	—	—	—	—	-0.36 (-8.71)
Parent	DE	—	—	—	—	—	0.51 (17.22)
	IE	—	—	—	—	—	-0.70 (-6.61)
	TE	—	—	—	—	—	0.41 (15.86)
Involvement	DE	—	—	—	—	—	0.14 (4.13)
	IE	—	—	—	—	—	—
	TE	—	—	—	—	—	0.14 (4.13)
Total	DE	—	—	—	—	—	0.27 (12.30)
	IE	—	—	—	—	—	—
	TE	—	—	—	—	—	0.27 (12.30)

Notes: First number is parameter estimate, number in parentheses is the ratio of the parameter estimate to standard error. Ratios exceeding 2.32 reflect $p < 0.01$ and are in italics.

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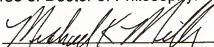
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BIOGRAPHICAL SKETCH

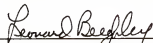
Cheryl H. Amey was born in Lowell, Massachusetts, on August 1, 1959, the daughter of Kenneth and Maureen McKay Hall. She was graduated from St. John's Preparatory High School in Waterloo, Belgium, in 1977. After several years of raising a family and pursuing her social concerns as the executive director of a nonprofit anti-hunger organization, Ms. Amey enrolled at the University of North Carolina at Wilmington. Majoring in mathematics, Ms. Amey was graduated cum laude in 1992. She was then accepted into the graduate program in the Department of Sociology at the University of Florida as a CLAS Fellow and was employed as a graduate research assistant in the Department of Health Policy and Epidemiology. After receiving a Master of Arts degree in sociology in 1994, she continued her studies towards a doctoral degree under the guidance of Dr. Michael K Miller, focusing primarily on the health of disadvantaged populations. Ms. Amey is presently employed in the Department of Health Policy and Epidemiology and plans to continue her research in the areas of poverty and health, with a special emphasis on health as a barrier to self-sufficiency in the context of welfare reform.

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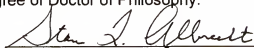
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Leonard Beeghley, Co-Chair
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Stan L. Albrecht
Professor of Sociology

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This dissertation was submitted to the Graduate Faculty of the Department of Sociology in the College of Liberal Arts and Sciences and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August 1998

Dean, Graduate School